



An Exploratory Study of Psychomotor Abilities among Cricket Players of Different Level of Achievement

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Abstract

The aim of this study is to find out the significant differences of psychomotor abilities, among cricket players of different level of achievement. 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 ($n_1=80$), Group-B: State Level Cricket Players ($n_2=65$) and Group-C: National level cricket players ($n_3=32$). 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. The results revealed significant differences between found among district, state and national level cricket players on the sub-variables; muscular strength, muscular power, muscular endurance, running speed, running agility, jumping ability, throwing ability, flexibility and balance.

Keywords: Psychomotor abilities, cricket players, different level of achievement.

Introduction

Cricket is a field-based popular team game in most Commonwealth countries. In the past, it was played solely within a specific season (winter in Asian countries and summer in western countries). But the game has gained so much popularity in the last few decades that it is now played throughout the year. Cricketers are therefore exposed to more demanding schedules, with longer periods of training and practicing. The increased workload may be one of the contributing factors to the increased incidence of injuries Davies¹. Stretch² reported that provincial and international cricketers had a tall, athletic built, with definite morphological differences existing between batsmen, bowlers and all-rounder. The batsmen tended to be shorter and lighter, although possessing greater relative fat mass than the bowlers. The bowlers were found to be tall, with long legs, broad shoulders and a small amount of fat in the thigh and shoulder regions. The all-rounder's had larger girth measurements and less relative fat than the batsmen and bowlers. The other characteristics of the all-rounder were similar to those of the other two groups. Again, studying the physical fitness profile of South African university cricketers, Stretch and Buys³ reported that although the cricketers were superior to sedentary subjects in the aspect of physical fitness, with the exception of flexibility, no significant differences existed between the batsmen, bowlers, all-rounder's and wicketkeepers. Furthermore, no significant differences existed between the provincial and non-provincial cricketers. The game of cricket has historically been known as "the gentleman's game". Until about three decades ago cricketers were certainly not the fittest athletes on the planet. Often it was remarked that cricket is

physically an easy game which requires one to stand on the field for most of the day and requires little running, jumping or strength.

Fletcher's⁵ data suggested that the energy demands of cricket are only slightly more than that required to stand Christie⁴ which led to the understanding that cricket was physically undemanding requiring more skill than "fitness" Noakes and Durand⁶ For high level of performance, physical fitness is most important and fundamental criteria. Cricket is a sport in which fitness is traditionally thought of as very important. 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. With the introduction of one day Cricket and more recently Twenty 20, the game has gone through major changes and the physical demands made on a cricketer's body have also increased dramatically. Depending on the version of the game being played and the role of 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 that of an opening batsman, and one-day cricket will be more demanding than a test match. In addition to the high level of skill required to play Cricket, a successful player needs good balance and core strength, speed for running between the wickets and in the field, and fast bowlers particularly need very good speed and power. Aerobic Fitness is an important component of fitness for cricket, so that players can reduce the effect of fatigue during long periods of play, and from day to day in multi-day matches.

Material and Methods

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 ± SD: age 22.89±1.76 years, height 176.04±4.18 cm, body mass 73.76±4.63 kg) were selected. The subjects were purposively assigned into three groups: i. Group-A: District Level Cricket Players (n₁=80), ii. Group-B: State Level Cricket Players (n₂=65), iii. Group-C: National Level Cricket Players (n₃=32).

Selection of Variables: A feasibility analysis as to which of the variables/skills could be taken up for the investigation, keeping in view the availability of tools, adequacy to the subjects and the legitimate time that could be devoted for tests and to keep the entire study unitary and integrated was made in consultation with experts. With the above criteria's in mind, following the following psychomotor proficiency variables was selected for the present study:

Psychomotor Abilities: Strength and Power Abilities: Muscular Strength, Muscular Power

Endurance Abilities: Muscular Endurance,

Basic Movement Patterns: i. Running Speed, ii. Running Agility, iii. Jumping Ability, iv. Throwing Ability

Neuromuscular Abilities: i. Flexibility, ii. Balance

Design of the Study: This is an exploratory study that has employed method of data collection and analysis quantitatively. The purpose of the study was to determine the difference of gross motor proficiency among cricket players of different level of achievement.

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 (n₁=80), State Level Cricket Players (n₂=65) and National Level Cricket Players (n₃=32)

| Variables | Sample Size (N=177) | | | |
|-------------|---------------------|---|--|---|
| | Total (N=177) | District Level Cricket Players (n ₁ =80) | State Level Cricket Players (n ₂ =65) | National Level Cricket Players (n ₃ =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 |

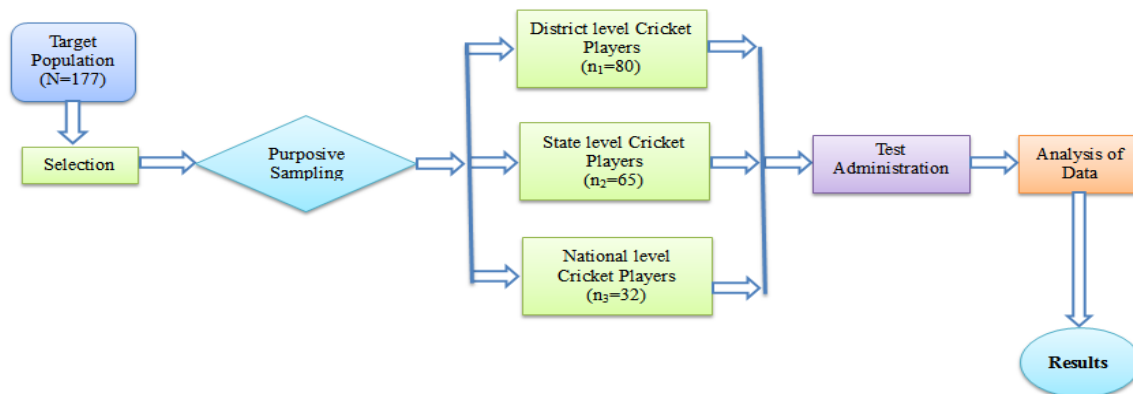


Figure-1
Study Design

Table-1

Analysis of Variance (ANOVA) results among District, State and National level Cricket Players with regard to the sub-parameter Muscular Strength

| Source of Variation | Sum of Squares | Degree of Freedom | Mean Square | F-value | P-value (Sig.) |
|---------------------|----------------|-------------------|-------------|---------|----------------|
| Between Groups | 2687.856 | 2 | 1343.928 | 59.416 | .000 |
| Within Groups | 3935.715 | 174 | 22.619 | | |
| Total | 6623.571 | 176 | | | |

*Significant at 0.05

F_{0.05} (2,174)

Results and Discussion

Results: It can be seen from table-2 that significant differences were found with regard to the sub-parameter Muscular Strength 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-value 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 Strength. The results of Scheffe’s post hoc test have been presented in table-3.

It has been observed from the table-3 that mean difference between District and State level Cricket Players was found 6.59231*. The P-value (Sig.) .000 showed that the State level Cricket Players had demonstrated significantly better Muscular Strength than their counterpart District level Cricket Players. The mean difference between District and National level Cricket Players was found

9.51875*. The P-value (Sig.) .000 showed that the National level Cricket Players had demonstrated significantly better Muscular Strength than their counterpart District level Cricket Players. It has been observed from the table-3 that mean difference between State and National level Cricket Players was found 2.92644*. The P-value (Sig.) .000 showed that the National level Cricket Players had demonstrated significantly better Muscular Strength than their counterpart State level Cricket Players.

It is evident from table 4 that significant differences were found with regard to the sub-parameter Muscular Power 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-value 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 Power. The results of Scheffe’s post hoc test have been presented in table-5.

Table-3
Analysis of Scheffe’s post hoc test among District, State and National level Cricket Players with regard to the sub-parameter Muscular Strength

| Means | | Mean Difference | P-value (Sig.) |
|--|--|-----------------|----------------|
| District Level Cricket Players (44.7000) | State Level Cricket Players (51.2923) | -6.59231* | .000 |
| | National Level Cricket Players (54.2188) | -9.51875* | .000 |
| State Level Cricket Players (51.2923) | District Level Cricket Players (44.7000) | 6.59231* | .000 |
| | National Level Cricket Players (54.2188) | -2.92644* | .019 |
| National Level Cricket Players (54.2188) | District Level Cricket Players (44.7000) | 9.51875* | .000 |
| | State Level Cricket Players (51.2923) | 2.92644* | .019 |

Table-4
Analysis of Variance (ANOVA) results among District, State and National level Cricket Players with regard to the sub-parameter Muscular Power

| Source of Variation | Sum of Squares | Degree of Freedom | Mean Square | F-value | P-value (Sig.) |
|---------------------|----------------|-------------------|-------------|---------|----------------|
| Between Groups | .802 | 2 | .401 | 197.166 | .000 |
| Within Groups | .354 | 174 | .002 | | |
| Total | 1.156 | 176 | | | |

*Significant at 0.05

F_{0.05} (2,174)

Table-5
Analysis of Scheffe’s post hoc test among District, State and National level Cricket Players with regard to the sub-parameter Muscular Power

| Means | | Mean Difference | P-value (Sig.) |
|---|---|-----------------|----------------|
| District Level Cricket Players (2.2263) | State Level Cricket Players (2.3149) | -.08867* | .000 |
| | National Level Cricket Players (2.4069) | -.18063* | .000 |
| State Level Cricket Players (2.3149) | District Level Cricket Players (2.2263) | .08867* | .000 |
| | National Level Cricket Players (2.4069) | -.09195* | .000 |
| National Level Cricket Players (2.4069) | District Level Cricket Players (2.2263) | .18063* | .000 |
| | State Level Cricket Players (2.3149) | .09195* | .000 |

It has been observed from the table-5 that mean difference between District and State level Cricket Players was found .08867*. The P-value (Sig.) .000 showed that the State level Cricket Players had demonstrated significantly better Muscular Power than their counterpart District level Cricket Players. The mean difference between District and National level Cricket Players was found .18063. The P-value (Sig.) .000 showed that the National level Cricket Players had demonstrated significantly better Muscular Power than their counterpart District level Cricket Players. It has been observed from the table-4 that mean difference between State and National level Cricket Players was found .09195*. The P-value (Sig.) .000 showed that the National level Cricket Players had demonstrated significantly better Muscular Power than their counterpart State level Cricket Players.

It can be observed from table 6 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-value 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. The results of Scheffe’s post hoc test have been presented in table-7.

It has been observed from the table-6 that mean difference between District and State level Cricket Players was found 4.21154*. The P-value (Sig.) .000 showed that the State level Cricket Players had demonstrated significantly better Muscular Endurance than their counterpart District level Cricket Players. The mean difference between District and National level Cricket Players was found 7.15562*. The P-value (Sig.) .000 showed that the National level Cricket Players had demonstrated significantly better Muscular Endurance than their counterpart District level Cricket Players. It has been observed from the table-7 that mean difference between State and National level Cricket Players was found 2.94409*. The P-value (Sig.) .000 showed that the National level Cricket Players had demonstrated significantly better Muscular Endurance than their counterpart State level Cricket Players.

Table-6

Analysis of Variance (ANOVA) results among District, State and National level Cricket Players with regard to 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_{0.05} (2,174)

Table-7

Analysis of Scheffe’s post hoc test among District, State and National level Cricket Players with regard to 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* | .000 |
| | National Level Cricket Players (13.2056) | -7.15562* | .000 |
| State Level Cricket Players (10.2615) | District Level Cricket Players (6.0500) | 4.21154* | .000 |
| | National Level Cricket Players (13.2056) | -2.94409* | .000 |
| National Level Cricket Players (13.2056) | District Level Cricket Players (6.0500) | 7.15562* | .000 |
| | State Level Cricket Players (10.2615) | 2.94409* | .000 |

Table-8

Analysis of Variance (ANOVA) results among District, State and National level Cricket Players with regard to 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)

The results of Analysis of Variance (ANOVA) in table 8 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-value 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. The results of Scheffe’s post hoc test have been presented in table-9.

It has been observed from the table-9 that mean difference between District and State level Cricket Players was found .25423*. The P-value (Sig.) .000 showed that the State level Cricket Players had demonstrated significantly better Running Speed than their counterpart District level Cricket Players. The mean difference between District and National level Cricket Players was found .35875*. The P-value (Sig.) .000 showed that

the National level Cricket Players had demonstrated significantly better Running Speed than their counterpart District level Cricket Players. It has been observed from the table-9 that mean difference between State and National level Cricket Players was found 10452*. The P-value (Sig.) .000 showed that the National level Cricket Players had demonstrated significantly better Running Speed than their counterpart State level Cricket Players.

It can be judged from table 10 that significant differences were found with regard to the sub-parameter running agility 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-value 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 Agility. The results of Scheffe’s post hoc test have been presented in Table-11.

Table-9
Analysis of Scheffe’s post hoc test among District, State and National level Cricket Players with regard to 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 |

Table-10
Analysis of Variance (ANOVA) results among District, State and National level Cricket Players with regard to the sub-parameter Running Agility

| Source of Variation | Sum of Squares | Degree of Freedom | Mean Square | F-value | P-value (Sig.) |
|---------------------|----------------|-------------------|-------------|---------|----------------|
| Between Groups | 72.877 | 2 | 36.438 | 118.994 | .000 |
| Within Groups | 53.282 | 174 | .306 | | |
| Total | 126.159 | 176 | | | |

*Significant at 0.05

F_{0.05} (2,174)

Table-11
Analysis of Scheffe’s post hoc test among District, State and National level Cricket Players with regard to the sub-parameter Running Agility

| Means | | Mean Difference | P-value (Sig.) |
|--|--|-----------------|----------------|
| District Level Cricket Players (17.5838) | State Level Cricket Players (16.7615) | .82221* | .000 |
| | National Level Cricket Players (15.8531) | 1.73062* | .000 |
| State Level Cricket Players (16.7615) | District Level Cricket Players (17.5838) | -.82221* | .000 |
| | National Level Cricket Players (15.8531) | .90841* | .000 |
| National Level Cricket Players (15.8531) | District Level Cricket Players (17.5838) | -1.73062* | .000 |
| | State Level Cricket Players (16.7615) | -.90841* | .000 |

It has been observed from the table-11 that mean difference between District and State level Cricket Players was found .82221*. The P-value (Sig.) .000 showed that the State level Cricket Players had demonstrated significantly better Running Agility than their counterpart District level Cricket Players. The mean difference between District and National level Cricket Players was found 1.73062*. The P-value (Sig.) .000 showed that the National level Cricket Players had demonstrated significantly better Running Agility than their counterpart District level Cricket Players. It has been observed from the table-10 that mean difference between State and National level Cricket Players was found .90841*. The P-value (Sig.) .000 showed that the National level Cricket Players had demonstrated significantly better Running Agility than their counterpart State level Cricket Players.

It can be seen from table-12 that significant differences were found with regard to the sub-parameter Jumping Ability 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-value 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 Jumping Ability. The results of Scheffe’s post hoc test have been presented in Table-13.

It has been observed from the table-12 that mean difference between District and State level Cricket Players was found 5.08750*. The P-value (Sig.) .000 showed that the State level Cricket Players had demonstrated significantly better Jumping Ability than their counterpart District level Cricket Players. The mean difference between District and National level Cricket Players was found 14.55000. The P-value (Sig.) .000 showed that the National level Cricket Players had demonstrated significantly better Jumping Ability than their counterpart District level Cricket Players. It has been observed from the table-13 that mean difference between State and National level Cricket Players was found 9.46250*. The P-value (Sig.) .000 showed that the National level Cricket Players had demonstrated significantly better Jumping Ability than their counterpart State level Cricket Players.

Table-12

Analysis of Variance (ANOVA) results among District, State and National level Cricket Players with regard to the sub-parameter Jumping Ability

| Source of Variation | Sum of Squares | Degree of Freedom | Mean Square | F-value | P-value (Sig.) |
|---------------------|----------------|-------------------|-------------|---------|----------------|
| Between Groups | 4874.515 | 2 | 2437.257 | 76.751 | .000 |
| Within Groups | 5525.462 | 174 | 31.756 | | |
| Total | 10399.977 | 176 | | | |

*Significant at 0.05

F_{0.05} (2,174)

Table-13

Analysis of Scheffe’s post hoc test among District, State and National level Cricket Players with regard to the sub-parameter Jumping Ability

| Means | | Mean Difference | P-value (Sig.) |
|--|--|-----------------|----------------|
| District Level Cricket Players (41.5125) | State Level Cricket Players (46.6000) | -5.08750* | .000 |
| | National Level Cricket Players (15.8531) | -14.55000* | .000 |
| State Level Cricket Players (46.6000) | District Level Cricket Players (41.5125) | 5.08750* | .000 |
| | National Level Cricket Players (56.0625) | -9.46250* | .000 |
| National Level Cricket Players (56.0625) | District Level Cricket Players (41.5125) | 14.55000* | .000 |
| | State Level Cricket Players (46.6000) | 9.46250* | .000 |

Table-14

Analysis of Variance (ANOVA) results among District, State and National level Cricket Players with regard to the sub-parameter Throwing Ability

| Source of Variation | Sum of Squares | Degree of Freedom | Mean Square | F-value | P-value (Sig.) |
|---------------------|----------------|-------------------|-------------|---------|----------------|
| Between Groups | 215.837 | 2 | 107.919 | 67.087 | .000 |
| Within Groups | 279.903 | 174 | 1.609 | | |
| Total | 495.740 | 176 | | | |

*Significant at 0.05

F_{0.05} (2,174)

It can be judged from table 14 that that significant differences were found with regard to the sub-parameter Throwing Ability 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-value 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 Throwing Ability. The results of Scheffe’s post hoc test have been presented in Table-15.

It has been observed from the table-14 that mean difference between District and State level Cricket Players was found 1.76058*. The P-value (Sig.) .000 showed that the State level Cricket Players had demonstrated significantly better Throwing Ability than their counterpart District level Cricket Players. The mean difference between District and National level Cricket Players was found 2.78750*. The P-value (Sig.) .000 showed that the National level Cricket Players had demonstrated

significantly better Throwing Ability than their counterpart District level Cricket Players. It has been observed from the table-14 that mean difference between State and National level Cricket Players was found 1.02692. The P-value (Sig.) .000 showed that the National level Cricket Players had demonstrated significantly better Throwing Ability than their counterpart State level Cricket Players.

The results of Analysis of Variance (ANOVA) in table 16 that significant differences were found with regard to the sub-parameter Flexibility 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-value 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 Flexibility. The results of Scheffe’s post hoc test have been presented in table-17.

Table-15
Analysis of Scheffe’s post hoc test among District, State and National level Cricket Players with regard to the sub-parameter Throwing Ability

| Means | | Mean Difference | P-value (Sig.) |
|--|--|-----------------|----------------|
| District Level Cricket Players (11.9625) | State Level Cricket Players (13.7231) | -1.76058* | .000 |
| | National Level Cricket Players (14.7500) | -2.78750* | .000 |
| State Level Cricket Players (13.7231) | District Level Cricket Players (11.9625) | 1.76058* | .000 |
| | National Level Cricket Players (14.7500) | -1.02692* | .001 |
| National Level Cricket Players (14.7500) | District Level Cricket Players (11.9625) | 2.78750* | .000 |
| | State Level Cricket Players (13.7231) | 1.02692* | .001 |

Table-16
Analysis of Variance (ANOVA) results among District, State and National level Cricket Players with regard to the sub-parameter Flexibility

| Source of Variation | Sum of Squares | Degree of Freedom | Mean Square | F-value | P-value (Sig.) |
|---------------------|----------------|-------------------|-------------|---------|----------------|
| Between Groups | 852.650 | 2 | 426.325 | 205.906 | .000 |
| Within Groups | 360.265 | 174 | 2.070 | | |
| Total | 1212.915 | 176 | | | |

*Significant at 0.05

F_{0.05} (2,174)

Table-17
Analysis of Scheffe’s post hoc test among District, State and National level Cricket Players with regard to the sub-parameter Flexibility

| Means | | Mean Difference | P-value (Sig.) |
|---|---|-----------------|----------------|
| District Level Cricket Players (3.0500) | State Level Cricket Players (4.8923) | -1.84231* | .000 |
| | National Level Cricket Players (9.1562) | -6.10625* | .000 |
| State Level Cricket Players (4.8923) | District Level Cricket Players (3.0500) | 1.84231* | .000 |
| | National Level Cricket Players (9.1562) | -4.26394* | .000 |
| National Level Cricket Players (9.1562) | District Level Cricket Players (3.0500) | 6.10625* | .000 |
| | State Level Cricket Players (4.8923) | 4.26394* | .000 |

It has been observed from the table-17 that mean difference between District and State level Cricket Players was found 1.84231*. The P-value (Sig.) .000 showed that the State level Cricket Players had demonstrated significantly better Flexibility than their counterpart District level Cricket Players. The mean difference between District and National level Cricket Players was found 6.10625*. The P-value (Sig.) .000 showed that the National level Cricket Players had demonstrated significantly better Flexibility than their counterpart District level Cricket Players. It has been observed from the table-16 that mean difference between State and National level Cricket Players was found 4.26394. The P-value (Sig.) .000 showed that the National level Cricket Players had demonstrated significantly better Flexibility than their counterpart State level Cricket Players.

It can be seen from table-18 that significant differences were found with regard to the sub-parameter Balance 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-value 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 Balance. The results of Scheffe's post hoc test have been presented in Table-19.

It has been observed from the table-18 that mean difference between District and State level Cricket Players was found 6.03173*. The P-value (Sig.) .000 showed that the State level Cricket Players had demonstrated significantly better Balance than their counterpart District level Cricket Players. The mean difference between District and National level Cricket Players was found 15.86250*. The P-value (Sig.) .000 showed that the National level Cricket Players had demonstrated significantly better Balance than their counterpart District level Cricket Players. It has been observed from the table-19 that mean difference between State and National level Cricket Players was found 9.83077*. The P-value (Sig.) .000 showed that the National level Cricket Players had demonstrated significantly better Balance than their counterpart State level Cricket Players.

Table-18

Analysis of Variance (ANOVA) results among District, State and National level Cricket Players with regard to the sub-parameter Balance

| Source of Variation | Sum of Squares | Degree of Freedom | Mean Square | F-value | P-value (Sig.) |
|---------------------|----------------|-------------------|-------------|---------|----------------|
| Between Groups | 5843.781 | 2 | 2921.890 | 134.052 | .000 |
| Within Groups | 3792.626 | 174 | 21.797 | | |
| Total | 9636.407 | 176 | | | |

*Significant at 0.05

F_{0.05} (2,174)

Table-19

Analysis of Scheffe's post hoc test among District, State and National level Cricket Players with regard to the sub-parameter Balance

| Means | | Mean Difference | P-value (Sig.) |
|--|--|-----------------|----------------|
| District Level Cricket Players (21.1375) | State Level Cricket Players (27.1692) | -6.03173* | .000 |
| | National Level Cricket Players (37.0000) | -15.86250* | .000 |
| State Level Cricket Players (27.1692) | District Level Cricket Players (21.1375) | 6.03173* | .000 |
| | National Level Cricket Players (37.0000) | -9.83077* | .000 |
| National Level Cricket Players (37.0000) | District Level Cricket Players (21.1375) | 15.86250* | .000 |
| | State Level Cricket Players (27.1692) | 9.83077* | .000 |

Conclusions

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 strength, muscular power, muscular endurance, running speed, running agility, jumping ability, throwing ability, flexibility and balance.

References

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