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Lohith NH

Research Scholar, Karpagam
University, Coimbatore, Tamil
Nadu, India.

Dr. S Suthakar

Head In-charge,
Dept. of Physical Education,
Karpagam University,
Coimbatore, Tamil Nadu, India.

Dr. Sundar Raj Urs

Professor, University College of
Physical Education, Bangalore
University, Bangalore-560 056,
Karnataka, India.

Analysis of the physical fitness of the physical education professional students participated in the different competition levels

Lohith NH, Dr. S Suthakar and Dr. Sundar Raj URS

Abstract

The purpose of this study was to compare the selected physical fitness variables of the Physical Education Professional students participated in the different competition levels. To achieve the purpose, eighty three male physical education students studying B.P.Ed. Courses at Alvas B.P.Ed. Moddigere and General Kariyappa B.P.Ed. College Shimogga during 2015 with age ranging 18-25 were selected at random. They had their credit in participating Intercollegiate, South Zone and All India competitions. The physical fitness variables selected for the study were the Shoulder Strength (Pull ups in nos.); Abdominal Strength (Sit ups in nos.); Agility (Shuttle Run in secs.); Speed (50 meters dash in secs.); Explosive Power (Standing Broad Jump in meters) and Cardiovascular Endurance (600 Meters Run/Walk in minutes). One-way analysis of variance (ANOVA) was used to find out the significant difference among different disciplines. Further the Scheffe's Post Hoc test was used to find the significant difference in paired mean scores. It was concluded that there was a significant difference in the Pull Ups, Sit Ups and Speed of the Physical Education Professional students participated in the different competition levels. A better understanding of these relationships will help to understand the power and endurance and also help to plan sport specific strength training at South Zone, All India and National level athletes.

Keywords: Physical fitness, professional students, competition levels

1. Introduction

Now-a-days, sports has changed with a lot of characteristics e.g. more scientific and mass oriented, well organized and mostly health directed, elevate mental and physical fitness of the participants, increase mental concentration, bring honor and social dignity to the successful participants (Sandeep, 2012) [7].

Fitness is the term, which is widely used in the present day health conscious society. The people have realized the importance of fitness in the day to day routines and also in achieving sports excellence. Fitness denotes a person status of physique in the relation to its physical achievements. Physical fitness is the most important factor for the progress in the general life. If the citizens of the country want to improve in any field may be sports or general life, physical fitness is the essential.

Physical fitness is being accepted as one of the vital objectives of the physical education. The adaptive capacity of the Individual to the rigors of the work is determined by his physical fitness. (Sarah R. Riedman)^[8] Physical fitness has been defined "as the ability to carry out daily tasks with vigour and alertness, without undue fatigue, and with ample energy to enjoy leisure time pursuits and to meet the unusual situations and unforeseen emergencies."

Physical fitness is the basic foundation for the most of the sports activities undertaken by an individual in his daily life. The present high sports performance levels are attributed to the superior physical fitness all over the world in all the levels of competition. Physical Fitness is highly essential in all the team and individual games. Strength, agility, speed and endurance are the important abilities for the successful performance of games. The dominant ability is the one from of the sport which requires a higher contribution. Most sports require peak performance at in least two abilities. The relationships among physical fitness create crucial physical athletic qualities. In the article the researcher compares the selected physical fitness of the physical education profession students who had participated in the different competition levels.

Correspondence

Lohith NH

Research Scholar,
Karpagam University,
Coimbatore, Tamil Nadu, India.

2. Purpose and Objective

The purpose of the study is to know the physical fitness and the objective of the study is to compare the physical fitness of the physical education professional students who had participated in the different competition levels.

3. Statement of the Hypotheses

It was hypothesized that there was no significant difference in the selected Physical Fitness variables (Shoulder strength, Abdominal Strength, Leg Explosive Power, Speed and Endurance) of the physical education professional students who had participated in the different competition levels.

4. Methodology

4.1. Selection of Subjects

To achieve the purpose of the study, seventy-eight male physical education students studying B.P.Ed. Courses at the Alvas B.P.Ed. Moddigere and General Kariyappa B.P.Ed. College Shimoga with age ranging 18-25 were selected at random. They had their credit in participating in the intercollegiate, South Zone and All India levels competitions.

4.2. Selection of Variables and criterion measures

The following variables are selected for the purpose of the study:

1. Shoulder Strength : Pull Ups (In nos.)
2. Abdominal Strength : Sit Ups (In nos.)
3. Explosive Power : Standing Broad Jump (In Meters.)
4. Speed : 50 meters dash (In secs.)
5. Cardiovascular Endurance : 600 Meters Run/Walk (In Minutes.)

4.3. Statistical Technique

The One-way Analysis of Variance (ANOVA) was used to find the significant difference among the three groups. The Scheffe's Post Hoc test was used to find the significant difference in the paired means.

5. Results of the Study

The One-way ANOVA (F test) results of the selected Physical Fitness scores of the Physical Education Professional students participated in the different competition levels.

Table 1: Table shows One-Way ANOVA Analysis on the selected Physical Fitness scores of the Physical Education Professional students participated in the different competition levels.

| Physical Fitness Variables | Groups | Sum of Squares | df | Mean Squares | F Value | Level of Sig. |
|---------------------------------------|----------------|----------------|----|--------------|---------|---------------------|
| Shoulder Strength (In Nos.) | Between Groups | 121.421 | 2 | 60.710 | 10.758 | Significant at 0.05 |
| | Within Groups | 451.447 | 80 | 5.643 | | |
| | Total | 572.867 | 82 | | | |
| Sit Ups (In Nos.) | Between Groups | 367.474 | 2 | 183.737 | 6.269 | Significant at 0.05 |
| | Within Groups | 2344.526 | 80 | 29.307 | | |
| | Total | 2712.000 | 82 | | | |
| Agility (In Secs.) | Between Groups | 1.443 | 2 | 0.722 | 2.185 | Significant at 0.05 |
| | Within Groups | 26.423 | 80 | 0.330 | | |
| | Total | 27.866 | 82 | | | |
| Explosive Power (In Meters) | Between Groups | 0.125 | 2 | 0.063 | 2.255 | Significant at 0.05 |
| | Within Groups | 2.221 | 80 | 0.028 | | |
| | Total | 2.346 | 82 | | | |
| Speed (In Secs.) | Between Groups | 9.460 | 2 | 4.730 | 3.513 | Not Significant |
| | Within Groups | 107.705 | 80 | 1.346 | | |
| | Total | 117.165 | 82 | | | |
| Cardiovascular Endurance (In Minutes) | Between Groups | 0.595 | 2 | 0.297 | 1.159 | Significant at 0.01 |
| | Within Groups | 20.538 | 80 | 0.257 | | |
| | Total | 21.133 | 82 | | | |

Groups: Intercollegiate, South Zone and All India (N=82)
Table value at 0.05(df=2, 80); 3.11; Table value at 0.01(df=2, 80)=4.88

The table-1 shows that the obtained 'F' ratios of 10.758, 6.269 and 3.513 for the shoulder strength, abdominal strength and speed were greater than the table value of 3.11 for df '2 and 80' required for significance at the 0.05 level of confidence. The results of the study indicated that there was a significant difference in the shoulder strength, abdominal strength and

speed variables among the Professional students participated in the different competition levels. To determine the significant difference in the said criterion variables among these paired means, the Scheffe's test was applied as the Post Hoc analysis and the results were presented in Table-2.

Table 2: Scheffe's Post Hoc Analysis on the Physical Fitness scores of the Physical Education Professional students participated in the different competition levels.

| Physical Fitness Variables | Competition Levels | | | Mean Difference | Critical Difference |
|----------------------------|--------------------|------------|-----------|-----------------|---------------------|
| | Inter Collegiate | South Zone | All India | | |
| Shoulder Strength | 8.861 | 12.000 | | 3.137* | 2.760 |
| | | 12.000 | 11.350 | 0.650 | 2.961 |
| | 8.861 | | 11.350 | 2.487* | 1.536 |
| Abdominal Strength | 25.672 | 32.200 | | 6.527* | 6.290 |
| | | 32.200 | 29.550 | 2.650 | 6.748 |
| | 25.672 | | 29.550 | 3.877* | 3.500 |
| Speed | 7.695 | 6.978 | | 0.717* | 1.348 |
| | | 6.978 | 6.954 | 0.023 | 1.446 |
| | 7.695 | | 6.954 | 0.740* | 0.738 |

*Significant at 0.05 level of confidence.

The table also shows the significant paired mean differences on the shoulder strength between the Intercollegiate & South Zone; and Intercollegiate & National level participated students and the values were 3.137 and 2.487 respectively which were greater than the critical difference value at 0.05 level of confidence. It concludes that there was a significant difference in the Shoulder Strength between the Intercollegiate & South Zone; and Intercollegiate & All India level participated physical education professional students and no difference exists between the South Zone & All India levels. The South zone level participated students had better shoulder strength than the All India and Intercollegiate participation level.

The table also shows the significant paired mean differences in the Abdominal Strength between the Intercollegiate & South Zone; and Intercollegiate & National level participated students and the values were 63.527 and 3.877 respectively which were greater than the critical difference value at 0.05 level of confidence. It was concluded that there was a significant difference in the Abdominal Strength between the Intercollegiate & South Zone; and Intercollegiate & All India

level participated physical education professional students and no difference exists between the South Zone & All India level. The South Zone level participated students had better abdominal strength than the All India and Intercollegiate participation level.

The table also shows the significant paired mean differences on the Speed between the Intercollegiate & South zone; and Intercollegiate & National level participated students and the values were 0.717 and 0.740 respectively which were greater than the critical difference value at 0.05 level of confidence. It was concluded that there was a significant difference in the Speed between the Intercollegiate & South Zone; and Intercollegiate & All India participated physical education professional students and no difference exists between the South Zone & All India level. The All India level participated students had better speed than the South Zone and Intercollegiate participation level.

The following Bar graph shows a comparison of the mean scores of the selected Physical Fitness scores of the Physical Education Professional students participated in the different competition levels.

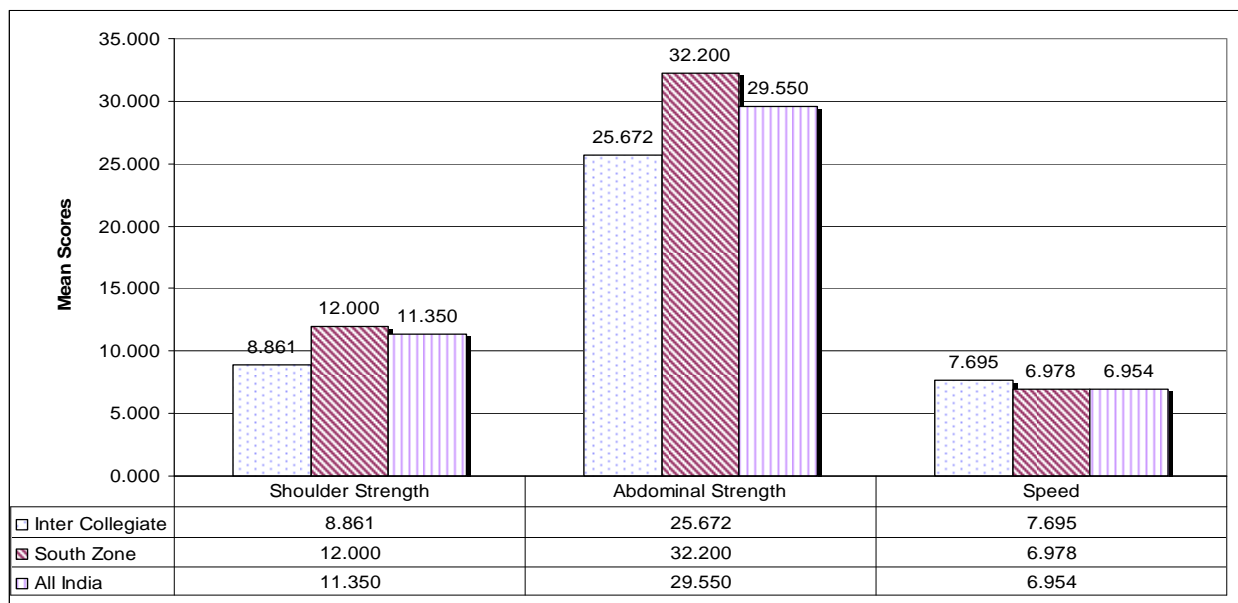


Fig 1: Comparison of mean scores of the selected Physical Fitness of the Physical Education Professional students participated in the different competition levels.

6. Findings of the Study

The major findings of the study:

1. There was a significant difference in the Shoulder Strength of the Physical Education Professional students participated in the different competition levels. The South zone level participated students had better shoulder strength than the All India and Intercollegiate participation level.
2. There is no significant difference in the Abdominal Strength of the Physical Education Professional students participated in the different competition levels. The South Zone level participated students had better Abdominal Strength than the All India and Intercollegiate participation level.
3. There is a significant difference in the Speed of the Physical Education Professional students participated in the different competition levels. The All India level participated students had better speed than the South zone and intercollegiate participation level.

7. Conclusion

The result shows that there was a significant difference in the shoulder & abdominal strength and speed among physical education students participated in the different competition levels except speed. A better understanding of these relationships will help to understand the strength and speed which can help to plan sport specific strength training at the South Zone, All India and National level athletes. Their training schedule opted aimed to improve the physical fitness for achieving the high sports performance.

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