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Comparison of selected motor fitness components among selected female sport groups

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Abstract

The purpose of this study was to compare the Selected Motor fitness components among different Selected Match Practice groups. For achieve the purpose fifty female students from LNIPE Gwalior, MP, were selected as the subject. All subjects were practicing regularly and related from different team games like Hockey, Football, volleyball, basketball and handball, who had participated in Inter-university and as well as in state championship were selected as the subject for this study. Their age ranged from 18 to 27 year old, the study was confined to the selected Motor fitness components namely Endurance, Strength, and Agility. The data of selected subject for Motor fitness components (Endurance, Strength, and Agility) were recorded by different measures, for Endurance, Strength and Agility, data were observed by performing the 12 min run/walk, Dynamometer and Shuttle Run.

The analysis of data reveals that there is insignificant difference in Strength between different match practice groups were obtained. The insignificant difference may be due to the type of test selected. Usually hockey players, football players, volleyball players, basketball players and handball players are employ same type of Strength of movement while taking part in a game. A significant difference in Endurance between hockey and football, hockey and volleyball, hockey and basketball, hockey and handball, football and volleyball, football and basketball, football and handball, volleyball and basketball, volleyball and handball and basketball and handball were obtained. An insignificant difference in Agility between hockey and handball was also obtained.

Keywords: Strength, endurance, agility

Introduction

Sports is one of the avenues of mankind's never ceasing strive for excellence. Its uniqueness lies in the intimacy between the Motor happenings of our bodies and their repercussions on our minds, as well as in the general re-cognoscibility of the social and aesthetic value. Sports evoke experience that is exclusively human and independent of the changing forms, patterns customs of a civilization, which involves profoundly modifying concepts of our environment. From its very simple form, a sport has emerged into highly organized form of play and play is a general innate tendency. Play is very important for preservation, growth and development of organism.

Over the years Motor fitness has become the well-built foundation of a structure that supports many concrete blocks on it which represents all the activities that make life worth living: intellectual life, spiritual life, family life and social life.

Fitness tests, often referred to as fitness evaluations or fitness assessments, includes a series of measurements that help determine the health status and Motor fitness of an individual. These tests are often the starting point for designing an appropriate exercise program. The specific tests used in an assessment depend on the health and fitness goals of the individual, the trainer's experience and the type of workout routines being performed. Performance of an athlete in the sports is not only depend upon the Motor fitness components but other factors also contribute to the success of an athlete in the sports arena such as scientific good quality equipment's, clothing, training schedule competition frequency & psychological preparation and the most important balanced diet. All these factors together make the athletes prepared for the competition and the only the fruitful result can be expected from the athlete in the competition. Motor fitness is the final criterion through which all other elements of physical fitness are seen and measured in man.

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How continuously and efficiently he performs his daily work in industry, on the farm, in the armed forces, or in athletic performance was at one time the only criterion that man had of physical fitness. He might know little or nothing about scientific facts of body structure, physiology or functioning the organs, strength test on dynamometer, or organic efficiency tests. But he could understand an outstanding performance displaying power, speed and endurance Dr. K. Muralirajan and S. Saravana Sudarsan (2015) [11].

Objectives

The purpose of the study was to compare the Motor fitness components among Selected Sport Groups.

Methodology

The purpose of the study was to compare the Motor fitness components among different match practice group, for achieve this purpose fifty Female students from LNIPE, Gwalior, MP, who had participated in Inter-university and as well as in state championship were selected as the subject for this study. All subjects were practicing regularly and related from different team games like Hockey, Football, volleyball, basketball and handball. Their age ranged from 18 to 27 year old. Their age ranged from 18 to 27 year old, the study was confined to the selected Motor fitness components namely Endurance, Strength, and Agility. The data of selected subject for Motor fitness components (Endurance, Strength, and Agility) were recorded by different measures, for Endurance, Strength and Agility, data were observed by performing the 12 min run/walk, Dynamometer and Shuttle Run.

Statistical Method

The Descriptive statistics and one-way analysis of variance (ANOVA) were applied to finding out the difference in selected Motor fitness components at 0.05 level of significance among different Match Practice Group of different Team Games.

Findings

After collecting the data of selected Motor fitness components of different match practice group players, score of each category of subjects were subjected of F analysis of variance (ANOVA) and LSD test applied for finding out the critical difference in mean performance of selected Motor fitness components among different match practice groups. The findings are presented in Tables.

Table 1: Descriptive and one way analysis of variance of motor fitness component (endurance) among selected sport groups

| Descriptive Analysis | | | | |
|----------------------|------------|----|------|--------------------|
| Variables | Groups | N | Mean | Standard Deviation |
| Endurance | Hockey | 10 | 1.46 | 0.034 |
| | Football | 10 | 2.49 | 0.124 |
| | Volleyball | 10 | 2.40 | 0.234 |
| | Basketball | 10 | 2.10 | 0.231 |
| | Handball | 10 | 2.25 | 0.091 |
| | Total | 50 | 2.14 | 0.401 |

| Anova Table | | | | | |
|-------------|---------------------|----------------|-------------------|-------------|--------|
| Variable | Sources of Variance | Sum of Squares | Degree of Freedom | Mean Square | F |
| Endurance | Between Groups | 6.694 | 4 | 1.674 | 62.665 |
| | Within Groups | 1.202 | 45 | 0.027 | |
| | Total | 7.896 | 49 | | |

* Significant at 0.05 level.

Tab $F_{.05(4,45)} = 2.58$

Cal $F > \text{Tab } F_{.05}$

The table shows that there is significant difference found between the mean value of Motor fitness components (Endurance) among selected sport groups.

Least Significant Difference (Post Hoc Test) For Mean of Motor Fitness Component (Endurance) Among Selected Sport Groups

| Hockey | Football | Volleyball | Basketball | Handball | Mean Difference | CD at 0.05 level |
|--------|----------|------------|------------|----------|-----------------|------------------|
| 1.46 | 2.49 | | | | -1.034* | 0.066 |
| 1.46 | | 2.39 | | | -0.939* | |
| 1.46 | | | 2.10 | | -0.645* | |
| 1.46 | | | | 2.25 | -0.796* | |
| | 2.49 | 2.39 | | | 0.095* | |
| | 2.49 | | 2.10 | | 0.389* | |
| | 2.49 | | | 2.25 | 0.238* | |
| | | 2.39 | 2.10 | | 0.294* | |
| | | 2.39 | | 2.25 | 0.143* | |
| | | | 2.10 | 2.25 | -0.151* | |

* Significant at 0.05 level of confidence.

The table shows that there is significant difference found between the mean value of Motor fitness components (Endurance) among selected sport groups.

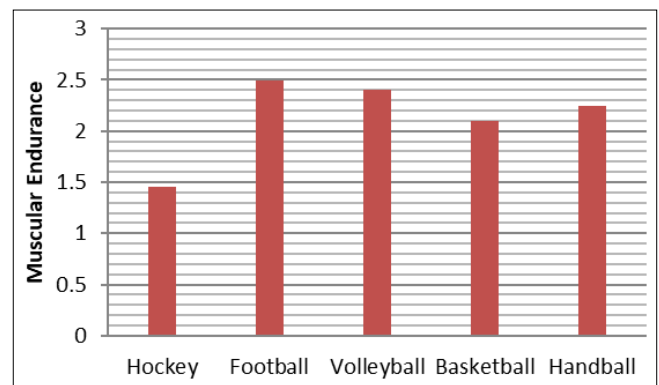


Fig 1: Motor Fitness Component (Endurance) among Selected Sport Groups

Table 2: Descriptive and one way analysis of variance of motor fitness component (strength) among selected sport groups

| Descriptive Analysis | | | | |
|----------------------|------------|----|------|--------------------|
| Variables | Groups | N | Mean | Standard Deviation |
| Strength | Hockey | 10 | 5.46 | 0.295 |
| | Football | 10 | 5.62 | 0.456 |
| | Volleyball | 10 | 5.50 | 0.374 |
| | Basketball | 10 | 5.22 | 0.187 |
| | Handball | 10 | 5.65 | 0.427 |
| | Total | 50 | 5.49 | 0.379 |

| Anova Table | | | | | |
|-------------|---------------------|----------------|-------------------|-------------|-------|
| Variable | Sources of Variance | Sum of Squares | Degree of Freedom | Mean Square | F |
| Strength | Between Groups | 1.164 | 4 | 0.291 | 2.227 |
| | Within Groups | 5.881 | 45 | 0.131 | |
| | Total | 7.045 | 49 | | |

* Significant at 0.05 level.

Tab $F_{.05(4,45)} = 2.58$

Cal $F < \text{Tab } F_{.05}$

The table shows that there is insignificant difference found between the mean value of Motor fitness components (Strength) among selected sport groups.

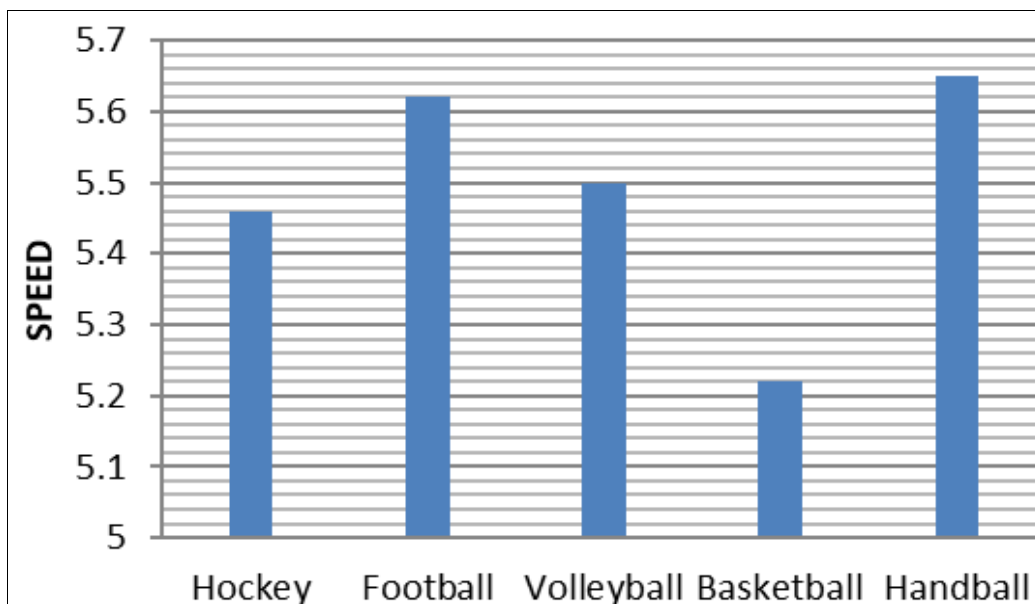


Fig 2: Motor Fitness Component (Strength) among Selected Sport Groups

Table 3: Descriptive and One Way Analysis of Variance of Motor Fitness Component (Agility) Among Selected Sport Groups

| Descriptive Analysis | | | | |
|----------------------|------------|----|------|--------------------|
| Variable | Groups | N | Mean | Standard Deviation |
| Agility | Hockey | 10 | 6.96 | 0.607 |
| | Football | 10 | 6.81 | 0.570 |
| | Volleyball | 10 | 6.45 | 0.287 |
| | Basketball | 10 | 7.20 | 0.371 |
| | Handball | 10 | 6.89 | 0.530 |
| | Total | 50 | 6.86 | 0.529 |

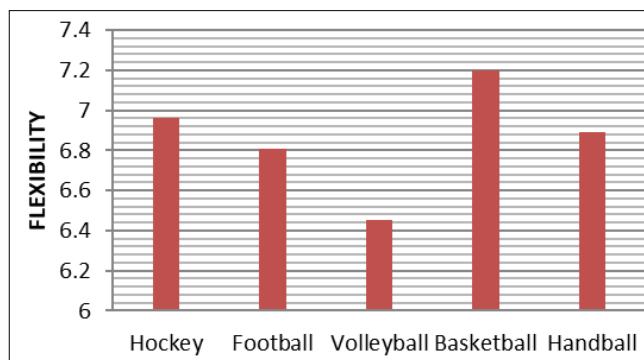


Fig 3: Motor Fitness Component (Agility) among Selected Sport Groups

| Anova Table | | | | | |
|-------------|---------------------|----------------|-------------------|-------------|-------|
| Variable | Sources of Variance | Sum of Squares | Degree of Freedom | Mean Square | F |
| Agility | Between Groups | 2.971 | 4 | 0.743 | 3.104 |
| | Within Groups | 10.767 | 45 | 0.239 | |
| | Total | 13.738 | 49 | | |

* Significant at 0.05 level.
 Tab $F_{.05(4,45)} = 2.58$
 Cal $F > \text{Tab } F_{.05}$

The table shows that there is insignificant difference found between the mean value of Motor fitness components (Agility) among different match practice group.

Table 4: Least Significant Difference (Post Hoc Test) For Mean of Motor Fitness Component (Agility) Among Selected Sport Groups

| Hockey | Football | Volleyball | Basketball | Handball | Mean Difference | CD at 0.05 level |
|--------|----------|------------|------------|----------|-----------------|------------------|
| 6.96 | 6.81 | | | | 0.150* | 0.195 |
| 6.96 | | 6.45 | | | 0.510* | |
| 6.96 | | | 7.20 | | -0.240* | |
| 6.96 | | | | 6.89 | 0.070 | |
| | 6.81 | 6.45 | | | 0.360* | |
| | 6.81 | | 7.20 | | -0.390* | |
| | 6.81 | | | 6.89 | -0.080 | |
| | | 6.45 | 7.20 | | -0.750* | |
| | | 6.4 | | 6.89 | -0.440* | |
| | | | 7.20 | 6.89 | 0.310* | |

* Significant at 0.05 level

The table shows that there is significant difference found between the mean value of Motor fitness components (Agility) among different match practice group.

Discussion

The analysis of data reveals that there is insignificant difference in Strength between different match practice groups were obtained. The insignificant difference may be due to the type of test selected. Usually hockey players, football players, volleyball players, basketball players and handball players are employ same type of Strength of movement while taking part in a game.

A significant difference in Endurance between hockey and football, hockey and volleyball, hockey and basketball, hockey and handball, football and volleyball, football and basketball, football and handball, volleyball and basketball, volleyball and handball and basketball and handball were obtained.

A significant difference in Agility between hockey and football, hockey and volleyball, hockey and basketball, football and volleyball, football and basketball, football and handball, volleyball and basketball, volleyball and handball and basketball and handball were obtained.

An insignificant difference in Agility between hockey and handball was also obtained.

Dr. K. Muralirajan and S. Saravana Sudarsan (2015) [11] suggested that there was no significant difference found between the different match practice groups i.e. Hockey, Football, Basketball, Volleyball, and Handball in relation to their motor fitness component (speed) and there was also no significant difference found between the hockey and handball in relation to their motor fitness component (agility). On the

other hand there was significant difference found between the different match group i.e. Hockey, Football, Basketball, Volleyball, and Handball in relation to their muscular endurance and agility (accept hockey and handball), when the subjects were involved in similar type of daily routine

Conclusions

With the limitations of the study it may be concluded that, there was no significant difference found between the different match practice groups i.e. Hockey, Football, Basketball, Volleyball, and Handball in relation to their Motor fitness component (Strength) and there was also no significant difference found between the hockey and handball in relation to their Motor fitness component (Agility).

On the other hand there was significant difference found between the different match group i.e. Hockey, Football, Basketball, Volleyball, and Handball in relation to their Endurance and Agility (accept hockey and handball), when the subjects were involved in similar type of daily routine.

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