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Relationship of selected motor fitness variables with the performance of badminton players

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Abstract

The purpose of this study was to find the relationship of motor fitness variables with the performance of badminton Players. For the purpose of the study, Twenty (20) male badminton Players were selected as subject from Guru Ghasidas Vishwavidyalaya Bilaspur and Pt. Ravi Shankar shukla university Raipur. The age of the subjects ranged from 20 to 28 years only. There are different motor fitness variables were selected for achieving the purpose of this study like flexibility, leg strength and speed. For this study the flexibility was measured by sit and reach test, the leg strength was measured by leg dynamometer, the speed was measured by 100 m race and the badminton performance was evaluated and graded by a panel of experts on the basis of their skills, techniques and match results. Zero order correlation was used to compute correlation between badminton Performance with the selected variables at 0.05 level of significance. The result of the study indicates that the flexibility was found significant at 0.05 level of significance. And on the basis of the findings of the study, the following conclusion has drawn that the flexibility of the subjects was important variable for better performance in badminton game.

Keywords: Flexibility, Leg strength, Speed and Performance

1. Introduction

We know that for important in any games or sport its techniques should be first mastered. For improving the techniques to work upon it, it is very important to analysis it to know the motor fitness variables of the technique which must be given due attention for improving that particular technique. The study had been taken to analysis the performance in badminton. So that those variables could be, know this contributes to the effectiveness of the technique.

The physical fitness is an entire human organism ability to function efficiently and effectively. It is made up of components which contribute for total quality of life. Physical fitness is associated with a personal ability to work efficiently and enjoy leisure time to be healthy; the optimal physical fitness is not possible without regular exercise. The physical fitness is the sum of five motor abilities namely flexibility, speed, endurance, strength and to coordinative abilities and their complex from like strength endurance, maximum strength, explosive strength, maximum strength, agility which are the basic prerequisites of human motor action. Therefore the badminton performance is also depended to a greater extent on these abilities. The improvement and maintenance of specific physical fitness or condition is the main aim of sports training. Each sport requires different type and level of specific fitness as a result different types of fitness training is required for different sports. Some sports like running requires a very high level of endurance and low level of motor abilities. Sports like shooting and archery do not require high level of physical fitness.

The motor fitness tests are frequently used as a method for evaluating children, adolescence and adults of their motor fitness abilities. Reilly & Franks realized that; test battery used may be useful in establishing baseline reference data for young players being selected onto specialized development programmers. In standing broad jump and 30m sprint among 6-12 years age, especially in age 8-12 years males surpassed their girl counterparts. In conclusion, vertical jump height is most often described as the strongest predictor of sprint performance with increasing maturity, we found that it remained strongly correlated with sprint performance, but less so than stride length, which was a predictive variable for adolescents between 12 and 15 years old.

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2. Methodology

2.1 Selection of subject

Twenty University and National Level badminton Players of Guru Ghasidas Vishwavidyalaya Bilaspur and Pt. Ravi Shankar shukla university Raipur were selected for the purpose of this study. The selected subjects were from the age group of 20-28 years. For establishing the relationship of the study the selected variables such as flexibility, leg strength, speed, were taken as a criterion measures.

2.2 Selection of variables

The selected motor fitness components in the present study were?

- Flexibility
- Leg strength
- speed

2.3 Criterion Measures

The criterion measures were used to collect the data in a deal and systematic way to record in a correct unit and style for test item.

- Flexibility was measured by sit and reach test in inches.
 - Leg Strength of the subjects was taken by leg dynamometer to the nearest kilogram.
1. Speed of the subjects was measured by 100 m race in seconds.

The performance of the subjects was measured on the basis of actual game. Every badminton player was participating in best of five matches, eleven points each. Performance was assessed by three judges /expert in game situation. 5 point scale has been used.

- Poor 1 point
- Below average 2 points
- Average/good 3 points
- Very good 4 point
- Excellent 5 point

Some more additional points were awarded according to result of match i.e. 5 points / marks for winning and 2 points / marks for loosing the match.

2.4 Statistical analysis

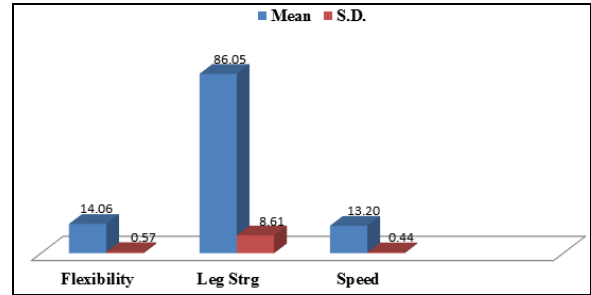
For determining the significant relationships of flexibility, with the performance of badminton player, the Pearson’s Product Moment Correlation was used for the analysis of data and the level of significance was set at 0.05 level of confidence. The relationship between the independent variables (flexibility, leg strength and speed) and criterion variable (Badminton performance) was obtained by “zero order correlation”. The dependent variable was taken as ‘x’ and independent variables were taken as ‘y’. The ‘x’ and ‘y’ variables were recorded and their correlations were obtained and analyzed. The correlation of all the sequences were computed with due regard to plus and minus signs. For obtaining the correlation ‘rxy’ between the independent variables and dependent variable, following formula was used:

$$r_{xy} = \frac{N\sum xy - (\sum x)(\sum y)}{\sqrt{N\sum x^2 - (\sum x)^2(N\sum y^2 - (\sum y)^2)}}$$

3. Results of the Study

Table 1: Mean and S.D. of selected motor fitness variables with the performance of badminton players

| Variables | Mean | S.D. | N |
|--------------|-------|------|----|
| Flexibility | 14.06 | 0.56 | 20 |
| Leg Strength | 86 | 8.61 | 20 |
| Speed | 13.20 | 0.44 | 20 |



Graph 1: Graphical representation of selected motor fitness variables with the performance of badminton players

Table 2: Coefficient of correlation of selected motor fitness variables at 0.05 level of significance

| Variables | ‘r’ |
|--------------|-----|
| Flexibility | 1 |
| Leg Strength | .05 |
| Speed | .38 |

*Significant at 0.05 level of significance

The value of correlation to be significant at 95% level of confidence with 18 degree of freedom is 0.444. Table 2 reveals that flexibility, Leg strength and speed of an individual correlates maximum with badminton players performance. The coefficient of correlation of flexibility (1) was more than the tabulated value (0.444), So that Flexibility was found significant relationship. Leg strength (.05), speed (.38) were less than the tabulated value, so that these variables were not found significant relationship with badminton Players performance at 0.05 level of significance.

4. Conclusion

Not Significant relationship found between the leg strength and speed to Badminton players but Flexibility was found significant relationship of badminton players performance.

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