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Selected motor fitness components with hundred meter sprint performance of inter collegiate sprinters

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Abstract

The purpose of the study was to see the relationship of selected motor fitness components with 100 meter sprint performance of sprinters.

Methodology: For this study twenty male inter-collegiate athletes aged between 18-25 years were selected from Davangere university athletic championship. The Motor Fitness Components included Speed (50 yard run), Muscular strength (Pull-ups), Muscular endurance (Bent knee sit-ups), Muscular power (Standing broad jump), Circulatory respiratory endurance (600-yards run/walk test), Flexibility (Sit and Reach) and Agility (Shuttle run). The time chosen for assessing the performance ability was administered in the Vanakeobavva Athletic Stadium Chitradurga, Karnataka state. To find out the correlations between motor fitness components and 100mt sprint performance Pearson product-moment Method of correlation was used.

Findings: There is a significant relationship found between selected Motor Fitness Components such as Speed, Muscular Endurance Muscular Power, Circulatory Respiratory Endurance, Agility and Sprint Performance. Insignificant relationship found between selected Motor Fitness Component such as Muscular Strength and Sprint Performance. There is a no significant relationship found between selected Motor Fitness Component such as Flexibility and Sprint Performance.

Keywords: Motor fitness, sprinters, performance

1. Introduction

The performance of players is influenced by many factors such as physical, physiological and psychological variables, technique, tactics, physique, body size, body composition and application of biomechanical principles (Ortega *et al.*, 2008) ^[7] No doubt the performance of player influenced by many factors but still motor fitness components is the primary factor among these entire factors (Lidor & Zjv, 2010) ^[5]. Motor fitness is a term that describes an athlete's ability to perform effectively during sports. An athlete's motor fitness is a combination of five different components, each of which is essential for high levels of performance (Davis, 2000) ^[10]. Motor fitness defined as a readiness or preparedness for performance with special regard for big muscle activity without undue fatigue. It concerns the capacity to move the body efficiently with force over a reasonable length of time.

Motor fitness, also termed motor ability, refers to a person's performance abilities as affected by the factors of speed, agility, balance, coordination, and power (Gallahue & Ozmun, 2006) ^[2]. Optimum physical performance is a combination of all the components of motor fitness (Tancred, 1995) ^[8]. Fitness is a condition in which an individual has sufficient energy to avoid fatigue and enjoy life. It is necessary for elderly people to maintain and improve their physical fitness in order to satisfy healthy, high quality of daily life (Tanaka *et al.*, 2004) ^[9]. Skill related physical fitness refers to an individual's athletic ability in sports such as tennis and encompasses skill-related attributes like dynamic balance, power, speed and agility; the health related aspect is a measure of cardiovascular endurance, muscle strength, endurance and flexibility and body composition (Hopkins & Walker, 1988) ^[3]. The term motor fitness, while often used synonymously with physical fitness (Kamlesh, 2012) ^[4]. Motor fitness takes into account efficiency of basic movements and therefore would involve ten components i.e. muscular leg strength, muscular back strength, cardiovascular endurance, muscular endurance flexibility, speed, agility, balance, power and reaction time (Nelson and Johnson, 1970) ^[6].

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The present study therefore aims to study the relationship of selected motor fitness components with hundred meter sprint performance of inter collegiate sprinters.

2. Methodology

2.1 Selection of subjects

For the study twenty male inter-collegiate athletes aged between 18-25 years were selected from Davangere university athletic championship.

2.2 Test administration

The subjects were tested for The Motor Fitness Components such as Speed were measured by 50 meter dash test and the score was measured in seconds, Muscular strength measured by Pull-ups test and the score was measured in numbers, Muscular endurance measured by Bent knee sit-ups The score was measured in the number of a sit ups completed in 60 seconds, Muscular power were measured by standing broad jump test and the score was measured in centimeters, Circulatory respiratory endurance were measured by 600-

yards run or walk test and the score was measured in seconds, Flexibility were measured by Sit and Reach test score was measured in centimeters and Agility measured by 10x4 meter shuttle run test and the score was measured in seconds. The time chosen for assessing the performance ability was administered in the Vanakeobavva Athletic Stadium Chitradurga. Karnataka State.

2.3 Statistical analysis

To determine whether relationship among the research variables exists or not Person product- moment correlation was applied. The data was computed on the Statistical package for the Social sciences.

3. Results of the study

To find out correlation between Motor Fitness Components in relation with hundred meter sprint performance of inter collegiate sprinters Product Moment Method of correlation was used.

Table 1: Correlation between Motor Fitness Components in relation with hundred meter sprint performance of inter collegiate sprinters

Si no	Variables	Pearson correlation
1	Sprint performance of inter collegiate sprinters and speed	0.675*
2	Sprint performance of inter collegiate sprinters and muscular strength	0.379
3	Sprint performance of inter collegiate sprinters and muscular endurance	0.665*
4	Sprint performance of inter collegiate sprinters and muscular power	0.674*
5	Sprint performance of inter collegiate sprinters and circulatory respiratory endurance	0.722*
6	Sprint performance of inter collegiate sprinters and flexibility	0.043
7	Sprint performance of inter collegiate sprinters and agility	0.711*

* Significant at 0.05 level.

Above table -1 shows that there is a significant relationship found between selected Motor Fitness Components namely Speed ($r=0.675^*$), Muscular Endurance ($r=0.665^*$), Muscular Power ($r=0.674^*$), Circulatory Respiratory Endurance ($r=0.722^*$), Agility ($r=0.711^*$) and Sprint Performance. There is a insignificant relationship found between selected Motor Fitness Components such as Muscular Strength($r=0.379$) and Sprint Performance. There is no significant relationship found between selected Motor Fitness Components such as Flexibility (0.043) and Sprint Performance.

4. Conclusion

On the basis of findings of the study, the following conclusions wear drawn.

1. There was a significant relationship found between selected Motor Fitness Components namely Speed, Muscular Endurance, Muscular Power, Circulatory Respiratory Endurance, Agility and Sprint Performance Of inter-collegiate 100 meter sprinters.
2. There was insignificant relationship found between selected Motor Fitness Components such as Muscular Strength and Sprint Performance of inter-collegiate 100 meter sprinters.
3. There was no significant relationship found between selected Motor Fitness Components such as Flexibility and Sprint Performance of inter-collegiate 100 meter sprinters.

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