STAR
Research Journal

Available online at www.starresearchjournal.com (Star International Journal)

PHYSICAL EDUCATION

Star. Phy. Edn 07 (2015)

AN ANALYTICAL STUDY ON MOTOR ABILITY VARIABLES OF THE JUNIOR STATE ATHLETES OF SOUTHERN STATES

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Abstract

The purpose of the study was to analyze the Motor ability variables of the junior state athletes of southern states. To achieve the purpose of this study, totally hundred Junior State athletes from five Southern States namely, Karnataka, Tamilnadu, Andhra Pradesh, Kerala and Pondicherry were selected and their age ranged between 17 and 20. The subjects were tested on selected variables namely Speed and power. Speed was assessed by 30 meters run and Power was assessed by standing broad jump test. To test the significance of the mean difference among the southern states namely analysis of variance (ANOVA) was used. In case of any significance of mean difference on the criterion measure, to find out which state was better among the others, the Scheffe's post – hoc test was applied. The result reveals that there was significant difference on selected variables among the athletes of southern states. Kerala athletes having better speed followed by Tamilnadu, karanataka, Andhra Pradesh and Pondicherry. Karnataka athletes having better power followed by Kerala, Pondicherry, Andhra Pradesh and Tamilnadu.

Key Words: Motor ability, Speed, Power.

Introduction

High level performance of an athlete may depend upon the motor ability. The term motor ability is used synonymously with general ability. There are many factors that contribute to successful performance in athletic ability. A totally fit individual must have motor ability also. Motor ability is also one of the important aspects of physical activities. The components of motor ability are Speed, Power, Agility, Endurance, Strength, Flexibility, and Coordination etcetera. Among the various motor abilities the investigator selected Speed, Power and Endurance for the investigation.

Speed

Speed is one of the main requisites, which enables for higher performance in certain motor tasks speed may vary from individual to individuals. Speed is the capacity of an individual to perform successive movements of the same pattern at a faster rate. Speed is one of the most important motor fitness components, which is highly essential for many motor activities. Speed is a valuable factor in the game and any sports."It is the performance prerequisite to do motor actions under given conditions (movement task, external factors, individual prerequisites) in minimum of time". Speed is one of the most important motor qualities required for successful performance in jumps, especially in the horizontal jump and in the pole vault. The amount of speed required is slightly different in the events due to differing emphasis in the take off. It is said that sprinters are born not made but it is certainly true that natural ability always plays a major role in sports events. Speed plays a significant role in hockey performance. Generally, in team events like hockey, soccer, basketball, the team with higher speed and strength wins because they can creatively influence the progress of the game by being in the better position and he keep up the ball position in favorable conditions.

Power

"Power is the capacity of an individual to bring into play maximum muscle contraction at fastest rate of speed". Power is the measure of total amount of work that the muscle performs in unit of times. The power of muscle contraction is different

from muscular strength. Power is determined not only by the strength of muscle contraction but also on its distance of contraction and the number of times that it contracts each minute; Muscle power is generally measured in kilogram meters per minute.

Muscular power and muscular strength are two different things. Muscular strength refers to how much force can be applied (The ability to lift a heavier weight as opposed to a lighter one). As per common knowledge, strength alone is not indicative of speed. Although muscle strength is correlated to sprint performance, research has shown that combining both resistance training and plyometric training will have better effects on training. While plyometric's assists in rapid force development (power), weight training assists in maximal force output (speed). Power refers to the combined factors of speed and strength (force). Performance in many sports is based on different types of power. In American Football, a lineman and a receiver may have the same power, but they have different limitations in how their power is delivered. The lineman would be speed limited, whereas the receiver would be strength limited.

Power plays a major role in all the competitive sports. In Athletics power has been considered as more important variable equally with other physical variables.

Materials and Methods

To achieve the purpose of this study, totally hundred Junior State athletes from five Southern States namely, Karnataka, Tamilnadu, Andhra Pradesh, Kerala and Pondicherry were selected and their age ranged between 17 and 20. The subjects were tested on selected variables namely Speed and power. Speed was assessed by 30 meters run and Power was assessed by standing broad jump test. To test the significance of the mean difference among the southern states namely analysis of variance (ANOVA) was used. In case of any significance of mean difference on the criterion measure, to find out which state was better among the others, the Scheffe's post – hoc test was applied.

Results and Discussion

Table -I
Descriptive Statistics of Speed and Power among the Junior State Athletes of Karnataka, Tamil Nadu, Kerala, Andhra Pradesh and Pondicherry

S.No	Variables	Karnataka		Tamil Nadu		Kerala		Andhra Pradesh		Pondicherry	
		Mean	Sd (±)	Mean	Sd (±)	Mean	Sd (±)	Mean	Sd (±)	Mean	Sd (±)
1	Speed	3.52	0.17	3.48	0.16	3.44	0.16	3.63	0.15	3.72	0.15
2	Power	2.43	0.085	2.44	0.087	2.54	0.45	2.50	0.45	2.35	0.08

Table-I shows the mean and standard deviation values of the Karnataka, Tamil Nadu, Kerala, Andhra Pradesh and Pondicherry state junior athletes on selected criterion variables namely speed and power.

Table – II
Analysis of variance of speed and power among the junior state athletes of Karnataka, Tamil Nadu, Kerala, Andhra Pradesh and Pondicherry

Source	Sum of squares	df	Mean squares	F
Between groups	1.089	4	0.272	9.84*
Within groups	2.629	95	0.028	
Between groups	0.95	4	0.23	11.21*
Within groups	2.02	95	0.021	

*$p < 0.05$ table f, df (4, 95) at (0.05) = 2.46

In the table- II the result of one way-analysis of variance on speed among the five states namely Karnataka, Tamil Nadu, Kerala, Andhra Pradesh and Pondicherry. From the table it can be seen that the calculated 'F' value of speed (9.84) which was greater than the table value of (2.46), which indicating that there exist significant difference among the groups ($p < 0.05$) for the degree of freedom (4, 95) at 0.05 level of confidence and the result of one-way analysis of variance on power among the five groups namely Karnataka, Tamil Nadu, Kerala, Andhra Pradesh and Pondicherry were presented. From the table it can be seen that the calculated F value of power (11.21) was greater than the table value of (2.46), indicating that there exist significant difference among the groups ($p<0.05$) for the degree of freedom (4, 95) at 0.05 level of confidence. Since the 'F' value was significant, the scheffe's post hoc test was further computed to find out which pair of group was high among the others and the results are tabulated in the table III.

Table – III

Scheffe's post hoc test of the significance for speed and power and mean difference among the junior state athletes of Karnataka, Tamil Nadu, Kerala, Andhra Pradesh and Pondicherry

Sl.No	Variables	Means					Mean Difference	CI
		Karnataka	Tamil Nadu	Kerala	Andhra Pradesh	Pondicherry		
1	Speed	3.52	3.48	---	---	---	0.035	0.12
		3.52	---	3.44	---	---	0.080	0.12
		3.52	---	---	3.63	---	0.115	0.12
		3.52	---	---	---	3.72	0.205*	0.12
		---	3.48	3.44	---	---	0.04	0.12
		---	3.48	---	3.63	---	0.15*	0.12
		---	3.48	---	---	3.72	0.24*	0.12
		---	----	3.44	3.63	---	0.19*	0.12
		---	----	3.44	---	3.72	0.28*	0.12
		----	----	----	3.63	3.72	0.09	0.12
2	Power	2.67	2.44	---	---	---	0.23*	0.22
		2.67	---	2.62	---	---	0.05	0.22
		2.67	---	---	2.45	---	0.22*	0.22
		2.67	---	---	---	2.46	0.21	0.22
		---	2.44	2.62	---	---	0.18	0.22
		---	2.44	---	2.45	---	0.01	0.22
		---	2.44	---	---	2.46	0.02	0.22
		---	---	2.62	2.45	---	0.17	0.22
		---	---	2.62	---	2.46	0.16	0.22
		---	---	---	2.45	2.46	0.01	0.22

From the table –III the mean difference values between Karnataka and Pondicherry, Tamil Nadu and Andhra pradesh, Tamil Nadu and Pondicherry, Kerala and Andhra Pradesh, Kerala and Pondicherry, (0.20, 0.15, 0.24, 0.19, 0.28) respectively, greater than the confidential interval value (0.12), which was significant at 0.05 level of confidence

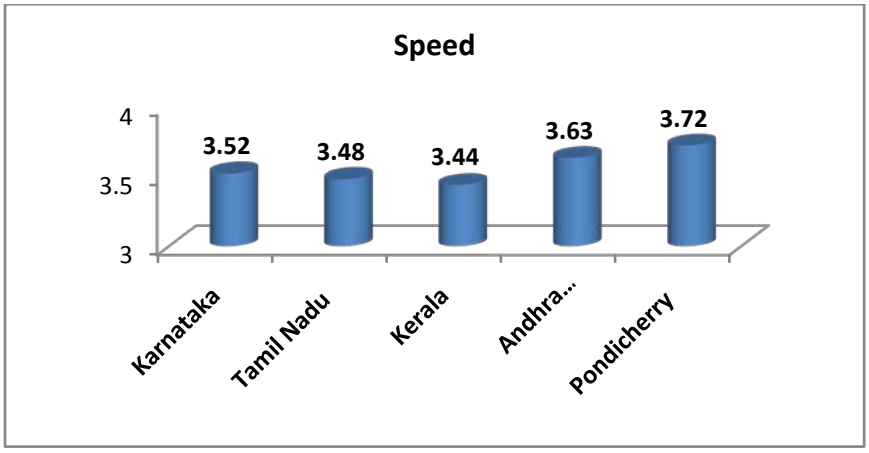
The mean difference values between Karnataka and Tamil Nadu (0.23) reveals that there was a significant difference in the variable power as the mean difference values were greater than the confidence interval value of 0.22, which was significant at 0.05 level of confidence.

The mean difference values between Karnataka and Andhra Pradesh (0.22) reveals that there was a significant difference in the variable

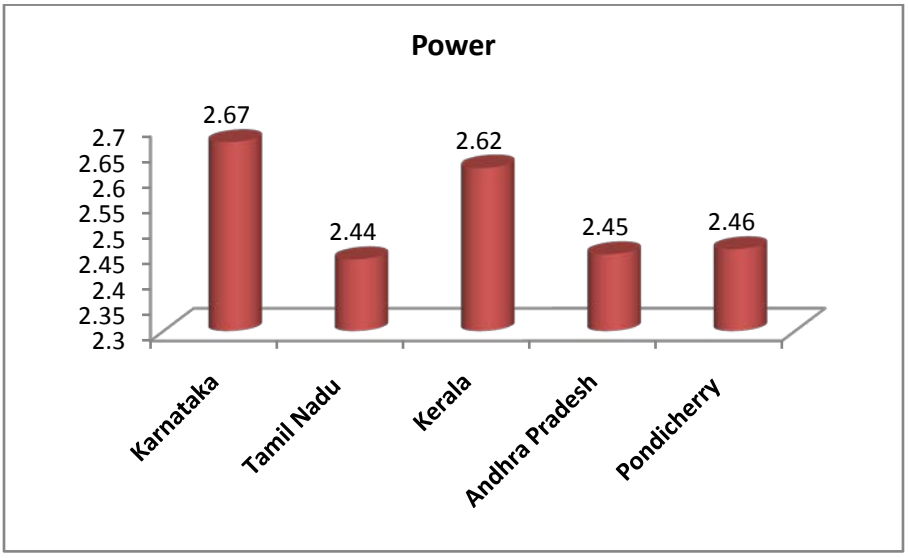
power as the mean difference values were greater than the confidence interval value of 0.22, which was significant at 0.05 level of confidence.

The mean values of speed and power among five southern states are graphically presented

Graphical description of the comparison of the means of speed among the junior state athletes of Karnataka, Tamil Nadu, Kerala, Andhra Pradesh and Pondicherry



Graphical description of the comparison of the means of power among the junior state athletes of Karnataka, Tamil Nadu, Kerala, Andhra Pradesh and Pondicherry



Conclusions

The results demonstrate that a number of significant difference in motor ability exist between different states.

1. Kerala athletes having better speed followed by Tamilnadu, karanataka, Andhra Pradesh and Pondicherry.
2. Karnataka athletes having better power followed by Kerala, Pondicherry, Andhra Pradesh and Tamilnadu.

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