



A COMPARATIVE STUDY ON PHYSICAL FITNESS COMPONENT AMONG UNIVERSITY WOMEN ATHLETES

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Abstract

The purpose of the present study was to find out the comparative study on physical fitness component among university Women athletes, for this study 40 women athletes out of which 10 sprinters, 10 middle distance runners, 10 jumpers and 10 throwers were selected at purposively from Manonmaniam Sundarsar University, Tirunelveli, Tamilnadu, India. They generally participate in various District level and inter collegiate competitions. The variables of this study were Speed, Abdominal Strength, and agility. Age of the subject was 18-20 years. To calculate the results ANOVA was used at 0.05 level of significance and to identify the significance differences among the means critical difference was used as a Post-hoc test. The Result of this study was reflecting that there was significant difference in speed, Abdominal Strength and Agility among Sprinter, Jumper, Thrower and Middle Distance Runner.

Keywords: Sprinter, jumper, thrower and middle distance runner

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Introduction

Physical fitness is now a common concept required for nation's development. Mechanical devices such as automatic washers, vacuum cleaners, gas furnaces etc. have reduced human labor for domestic affairs in daily life. Television, Radio, Tape Recorder Electronic Media and such other amusing media indulge sedentary life style, similarly buses and vehicles have reduced normal activities such as walking and moving around for work and maintenance of daily life. Human body cannot remain in normal condition without activity, Regular physical exercise provides the opportunity to maintain physical fitness of the individual, physically fit people can serve best for the nation. It is known that fitness and wellness make an individual physically fit, mentally stable and help becoming a good citizen. Fitness helps individual achieve satisfactory level of strength, endurance and flexibility. It further improves the confidence and energy level. One feels more energetic and fresh for the whole day. It also leads to sound sleep followed by more relaxed body leading to mental satisfaction and social stability. Body becomes more resistant to general ailments. Fitness improves efficiency of heart and lungs by improving cardio respiratory fitness. It helps in maintaining normal blood pressure of the body. In nutshell, we can say fitness and wellness helps to achieve the aim of physical education i.e.,

"All round development of personality of the individual." As compared to other sprinting events, the relative simplicity of the 100 m sprint makes it ideal for studying the elements of sprint running. Unlike other track-and-field sprints, such as the 200 m or 400 m event, the 100 m sprint does not involve a curve of the track. Thus, running technique involves purely linear movement, and no centrifugal or centripetal (outward and inward radial) forces. A physical profile that is shoulder strength, leg strength may be defined as physical characteristics of an individual involved in the task performance of the individual. Shoulder strength is frequently recognized by physical educator as the most important performance of the skill. Leg strength is the ability of our leg muscles to mobilize strength in a short period of time. Lower-body power is the application of strength through the dimensions of time. Leg strength plays an important role in development of skill and also helps to perform the skill in the actual competition situation. In team games and individual games like- Kabaddi, Basketball, Volleyball, Athletics, Gymnastics etc. So the players who are physically fit adopt the skill successfully and more perfectly. Lower extremity power is valuable in a variety of sports and athletic endeavors. Many existing protocols focus on plyometrics or strength training to increase standing broad jump distance measure of leg power. The lower leg power is particularly susceptible to contusions because it is frequently exposed to direct blows. Leg power is an ability of our leg muscles to mobilize strength in a short period of time. Lower body power is the application of strength through the dimension of the time. There are so many procedures

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taken by the physical education teacher to improve the leg power of the sprinters & jumpers. The technique broad jump is used by the coaches in improving playing ability of the sprinters & jumpers.

METHODS AND MATERIALS

The Purpose of the study was to compare the physical fitness components and among Sprinters, Middle distance runners, Jumpers and Throwers.

METHODOLOGY

For this study 40 Athletes out of which 10 sprinters, 10 middle distance runners, 10 jumpers and 10 throwers were selected at purposively from Manonmaniam Sundaranar University, Tirunelveli, Tamil Nadu, India. They generally participate in various district level and inter collegiate competitions. The variables of this study were Speed, Abdominal Strength and agility. Age of the subject was 18-20 years. To calculate the results ANOVA was used at 0.05 level of significance and to identify the significance differences among the means critical difference was used as a Post-hoc test.

TABLE - I
MEAN AND STANDARD DEVIATION OF SPEED AMONG SPRINTERS, JUMPERS, MIDDLE DISTANCE RUNNERS AND THROWERS

Group	Mean	SD
Sprinters	7.686	0.390
Jumpers	7.772	0.426
Middle Distance Runners	8.049	0.269
Throwers	8.166	0.342

TABLE - II
ANALYSIS OF VARIANCE OF SPEED AMONG SPRINTERS, JUMPERS, MIDDLE DISTANCE RUNNERS AND THROWERS

Variable	Variance	SS	MS	DF	"F" - ratio
Speed	Between the Group	1.536	0.512	3	3.938*
	Within the Group	4.701	0.130	36	

TABLE - III
ANALYSIS OF CRITICAL DIFFERENCE OF SPEED AMONG SPRINTERS, JUMPERS, MIDDLE DISTANCE RUNNERS AND THROWERS

Variable	Mean				Mean Difference	Critical Difference
Speed	Sprinters	Jumpers	Middle Distance Runners	Throwers		0.325
	7.686	7.772	-	-	0.086	
	7.686	-	8.049	-	0.363*	
	7.686	-	-	8.166	0.48*	
		7.772	8.049	-	0.277	
		7.772	-	8.166	0.396*	
		-	8.049	8.166	0.117	

TABLE - IV
MEAN AND STANDARD DEVIATION OF ABDOMINAL STRENGTH AMONG SPRINTERS, JUMPERS, MIDDLE DISTANCE RUNNERS AND THROWERS

Group	Mean	SD
Sprinters	48.1	6.624
Jumpers	46.5	7.059
Middle Distance Runners	48.9	8.238
Throwers	34.2	6.528

TABLE - V
ANALYSIS OF VARIANCE OF ABDOMINAL STRENGTH AMONG SPRINTERS, JUMPERS, MIDDLE
DISTANCE RUNNERS AND THROWERS

Variable	Variance	SS	MS	DF	“F” - ratio
Abdominal Strength	Between the Group	1423.875	474.625	3	19.628*
	Within the Group	1837.5	51.041	36	

TABLE - VI
ANALYSIS OF CRITICAL DIFFERENCE OF ABDOMINAL STRENGTH AMONG SPRINTERS, JUMPERS,
MIDDLE DISTANCE RUNNERS AND THROWERS

Variable	Mean				Mean Difference	Critical Difference
Abdominal Strength	Sprinters	Jumpers	Middle Distance Runners	Throwers		6.457
	48.1	46.5	-	-	1.6	
	48.1	-	48.9	-	0.8	
	48.1	-	-	34.2	13.9*	
	-	46.5	48.9	-	2.4	
	-	46.5	-	34.2	12.3*	
	-	-	48.9	34.2	14.7*	

TABLE - VII
MEAN AND STANDARD DEVIATION OF AGILITY
AMONG SPRINTERS, JUMPERS, MIDDLE DISTANCE RUNNERS AND
THROWERS

Group	Mean	SD
Sprinters	12.025	0.281
Jumpers	11.724	0.529
Middle Distance Runners	11.943	0.395
Throwers	12.313	0.414

TABLE - VIII
ANALYSIS OF VARIANCE OF AGILITY AMONG SPRINTERS, JUMPERS, MIDDLE DISTANCE RUNNERS
AND THROWERS

Variable	Variance	SS	MS	DF	“F” - ratio
Agility	Between the Group	1.778	0.592	3	3.461*
	Within the Group	6.183	0.171	36	

TABLE - VI
ANALYSIS OF CRITICAL DIFFERENCE OF AGILITY AMONG SPRINTERS, JUMPERS, MIDDLE DISTANCE
RUNNERS AND THROWERS

Variable	Mean				Mean Difference	Critical Difference
Agility	Sprinters	Jumpers	Middle Distance Runners	Throwers		0.069
	12.025	11.724	-	-	0.301*	
	48.1	-	11.943	-	0.082*	
	48.1	-	-	12.313	0.288*	
	-	46.5	48.9	-	0.219*	
	-	46.5	-	34.2	0.589*	
	-	-	48.9	34.2	0.37*	

RESULTS AND DISCUSSION

From the above study it was found that in respect of physical fitness component, speed there was no significant difference when compared to sprinters and

jumpers, jumpers and middle distance runners and middle distance runners and throwers but there was significant difference was found between sprinters and middle distance runners, sprinters and throwers, jumpers and throwers. In respect of physical fitness component agility there was significant difference was found between sprinters and jumpers, sprinters and middle distance runners, jumpers and middle distance runners, sprinters and throwers, jumpers and throwers, middle distance runners and throwers. Such difference was found due to the track games athletes use more agility and speed while running. The track athletes also must have these characteristics ability to make them able to score positive result (Nagoor Meera Abdullah *et al.* - 2013). From the above study it was found that in respect of physical fitness component of abdominal strength there was no significant difference was found between sprinters and jumpers, sprinters and middle distance runners, and jumpers and middle distance runners but there was significant difference was found between sprinters and throwers, jumpers and throwers, and middle distance runners and throwers. The result was found such due to the effect of the health component in the muscular endurance might have influenced the test result (Nagoor Meera Abdullah *et al.* 2013).

CONCLUSIONS

Within the limitations of the present study the following Conclusions may be drawn:-

1. There was no significant difference between sprinters and jumpers, jumpers and middle distance runners, middle distance runners and throwers but there was significant difference was found between sprinters and middle distance runners, sprinters and throwers, jumpers and throwers.
2. In case of agility there was significant difference was found between sprinters and jumpers, sprinters and middle distance runners, jumpers and middle distance runners, sprinters and throwers, jumpers and throwers, middle distance runners and throwers.
3. In case of Abdominal Strength no significant difference was found between sprinters and jumpers, sprinters and middle distance runners, jumpers and middle distance runners but there was significant difference was found between sprinters and throwers, jumpers and throwers, middle distance runners and throwers.

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