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Appraisal of Athletic Power, Shoulder Girdle Strength and Speed among Judokas, Grapplers and Pugilists

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Abstract

The present study was conducted to assess the athletic power, shoulder girdle strength and speed among judokas, grapplers and pugilists. Total Sixty (N=60) male combative sportspersons were selected which includes judokas (n=20), Grapplers (n=20) and Pugilists (n=20) who had participated in the summer camp of their respective field were selected to act as subjects. The age of subjects were ranged between 17 to 21 years. Athletic Power was measured by Standing Broad Jump, Shoulder Girdle Strength was measured by the Medicine Ball Putt and the Speed was measured by 50 yard dash test. The one way Analysis of Variance (ANOVA) was applied to find out the significant differences among judokas, grapplers and pugilists. Where 'F' ratio was found significant, Scheffe's post-hoc test was applied to see the direction of differences among judokas, grapplers and pugilists. The level of significance was set at 0.05. The results of One way Analysis of Variance (ANOVA) showed insignificant differences among judokas, grapplers and pugilists with regard to the variables i.e. athletic power, shoulder girdle strength and speed.

Keywords: Athletic Power, Shoulder Girdle Strength, Speed, Judokas, Grapplers, Pugilists

Introduction

Muscular power is one's ability to produce maximum muscular strength (force) in shortest possible time. Muscular power is classified into two types i.e. (i) Athletic power and, (ii) Work power. Athletic power is the muscular power expressed in terms of the distance through which the body or an object is propelled in space. However the work power refers to the muscular power dealing with the computations of the work force (Force X distance) or work done per unit of time (work/ Time) is known as work power (Kansal, 1996) ^[6]. Abernethy *et al.* (1995) ^[1] stated that athletic strength and power refer to the forces or torques generated during sporting activity. Similarly, Johnson and Nelson (1982) ^[4] illustrated the athletic power in terms of the course in which the corpse or a thing is thrust through space. But factors like force and velocity are not measured; only the resulting distance is documented in athletic power measurement. Strength and speed are the most important components of physical fitness, wherein shoulder strength can be understood in the light of the definition given by Philip & Hanrek (1979) ^[7] that strength is the contractive power of muscles attained by a single maximum effort, According to Barrow & McGee (1971) ^[3] speed is one's ability to perform successive movements of the same pattern at a fast rate. It may also be explained as rapidity with which a movement or successive movement of the same kind may be performed by an individual. Muscular strength is an evident force requirement for sports activity. The amount needed for various kinds of sport is variable; however, contemporary authorities agree that the primary source of human force is strength. Strength is the ability to overcome resistance or to act against resistance. Strength speed should not be considered a project of only muscular contractions. It is, in fact, a product of voluntary muscular contractions caused by the neuro-muscular system. In different movements, strength appears in some combination with the duration and speed of movement that is, in combination with endurance and speed abilities (Singh, 1990) ^[11]. Tancred (1995) ^[12] defined speed as the extent to which muscles can exert force by contracting against resistance e.g. holding or restraining an object or person. Judo and wrestling are confrontational sports which involves physical contact as well as also demands rapidity of movement as it provides basis for enhancing one's level of performance. Kano (1936) ^[5] corroborated judo, wrestling and boxing are dynamic in nature as the demand he application of one's physical and mental energy in effective manner. Rondey *et al.* (2007) ^[9] combative sports like judo, wrestling and boxing demands the philosophy of "maximum efficiency with minimum effort" which has generated considerable interest in the early phases of a bout or the time in which the opponent's balance is manipulated. Therefore, the purpose of the present study is to assess the athletic power, shoulder girdle strength and speed among judokas, grapplers and pugilists.

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Material and Method

Sample: Total Sixty (N=60) male combative sportspersons were selected which includes judokas (n=20), Grapplers (n=20) and Pugilists (n=20) who had participated in the summer camp of their respective field were randomly selected to act as subjects. The age of subjects were ranged between 17 to 21 years.

Tool: Athletic Power was measured by Standing Broad Jump as described by (Johnson and Nelson, 1982) [4] and only the best trial was recorded out of three trials however the measuring unit was meter, Shoulder Girdle Strength was measured by the Medicine Ball Putt and the best throw of three throws is recorded as final score. Speed was measured by 50 yard dash test and the score is the best of the three trials measured to the nearest seconds.

Variables	Testing Tools	Unit of Measurement
Athletic Power	Standing Broad Jump	in Meters
Shoulder Girdle Strength	Medicine Ball Put	in Meters
Speed	50 yard dash test	in Seconds

Statistical Technique: The data was further subjected to one way Analysis of Variance (ANOVA) to find out the intra-group differences and where the 'F' ratio found significant then Post-hoc test (Scheffe's) was applied to find out the direction and degree of differences. To test the hypothesis, the level of significance was set at 0.05.

Results & Discussion

The results with regard to variables athletic power, shoulder girdle strength and speed among judokas, grapplers and pugilists have been presented below:

Table 1: Analysis of Variance (ANOVA) results with regard to the variable Athletic Power among judokas, grapplers and pugilists

Variable	Source of variance	Sum of squares	D.F.	Mean square	F-ratio	Sig.
Athletic Power	Between group	.758	2	.379	.352	.705
	Within group	61.348	57	1.076		
	Total	62.105	59			

Significant at 0.05

F_{0.05} (2, 57)

It has been observed from table-1 that results of Analysis of Variance (ANOVA) among judokas, grapplers and pugilists

on the variable Athletic Power were found statistically insignificant as the obtained P-value (sig.) .705 was found higher than 0.05 level of confidence. Since 'F' ratio was not found statistically significant, therefore, there is no need to apply the post hoc test.

Table 2: Analysis of Variance (ANOVA) results with regard to the variable Shoulder Girdle Strength among judokas, grapplers and pugilists

Variable	Source of variance	Sum of squares	D.F.	Mean square	F-ratio	Sig.
Shoulder girdle Strength	Between group	36.560	2	18.280	1.917	.156
	Within group	543.654	57	9.538		
	Total	580.214	59			

Significant at 0.05

F_{0.05} (2, 57)

It has been evident from table-2 that results of Analysis of Variance (ANOVA) among judokas, grapplers and pugilists on the variable shoulder girdle strength were found statistically insignificant as the obtained P-value (sig.) .156 was found higher than 0.05 level of confidence. Since 'F' ratio was not found statistically significant, therefore, there is no need to apply the post hoc test.

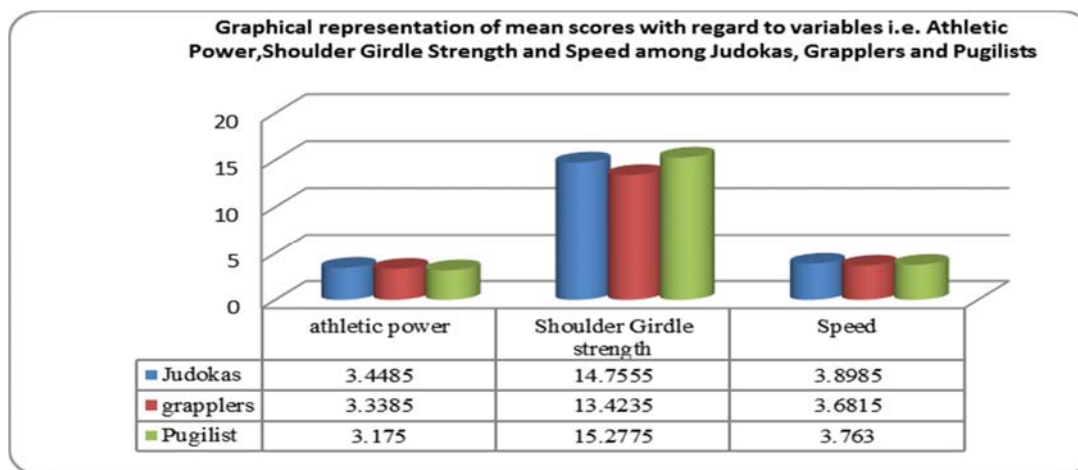
Table 3: Analysis of Variance (ANOVA) results with regard to the variable Speed among judokas, grapplers and pugilists

Variable	Source of variance	Sum of squares	D.F.	Mean square	F-ratio	Sig.
Speed	Between group	.481	2	.240	1.604	.210
	Within group	8.541	57	.150		
	Total	9.022	59			

Significant at 0.05

F_{0.05} (2, 57)

It has been illustrated from table-3 that results of Analysis of Variance (ANOVA) among judokas, grapplers and pugilists on the variable shoulder girdle strength were found statistically insignificant as the obtained P-value (sig.) .210 was found higher than 0.05 level of confidence. Since 'F' ratio was not found statistically significant, therefore, there is no need to apply the post hoc test. The graphical representation of mean scores with regard to the variables i.e. athletic power, shoulder girdle strength and speed among judokas, grapplers and pugilists has been exhibited in figure-1.



It is evident from above findings that insignificant differences were found among judokas, grapplers and pugilists on the variables i.e. athletic power, shoulder girdle strength and speed as the obtained P values (sig.)(athletic power =.705, shoulder girdle strength=.156, speed=.210) were found higher than 0.05 level of confidence. The outcome of the study might be due to the fact that explosive power, muscular strength as well as speed all these selected components plays leading role as far as combative sports are concerned, whereas, the training schedule of the players designed in such a manner that it would contribute for the development of these components. Therefore, all the groups developed equally on the above said variables. The present findings substantiate the assertion of Singh (2014) ^[10] who corroborated insignificant differences between judokas and wrestlers with regard to the speed of the movement. Similarly, Ratamess (2011) ^[8] substantiated that the grappling sports i.e judo and wrestling demand training specifically targeting all health and skill-related fitness components in order to maximize the level of success in grappling sports. Strength and condition programs for grapplers consist of weight, polymeric, agility, flexibility, speed, and aerobic training all properly periodized and integrated with sport practice to maximize performance at the appropriate time. Contrary to the study conducted by Ali *et al.* (2011) ^[2] reported significant differences between female players of the two states on speed, endurance and explosive strength except abdominal strength.

Conclusion

It is concluded from the above findings that no significant differences were observed on the variables i.e. athletic power, shoulder girdle strength and speed among judokas, grapplers and pugilists.

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