

Compare the Coordinative Abilities of Judokas among Different Weight Categories

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ABSTRACT

The purpose of this study was to compare the Coordinative Abilities of Judokas among Different Weight Categories. For the purpose of this study eighty (80) male judo players of Inter University level (ten from each weight category) were selected as subjects for the study. Orientation Ability, Differentiation Ability, Reaction Ability, Balance Ability and Rhythm Ability were selected for comparison. The data was collected for each variable administering their respective tests. To compare the coordinative abilities of Judokas among different weight categories, analysis of variance (ANOVA) was employed at .05 level of significance. There was not any significant difference in different weight categories in relation to orientation ability. There was significant difference in different weight categories in relation to differentiation ability, Reaction Ability, Balance Ability and Rhythm Ability.

Keywords: Orientation Ability, Differentiation Ability, Reaction Ability, Balance Ability and Rhythm Ability.

INTRODUCTION

Sports have very prominent role in modern society. Today sports have become an inseparable phenomenon of our social life. It is important to an individual, a group a nation indeed the world. As it is well understood, "fit body fit nation" Sports have ever reflected developments in society. Sports indeed, have been a mirror of society.

Sports form an important aspect of life. They play a vital role in bringing about physical, mental and social growth of the nation. The past few decades have witnessed man on innovation in this area. Sports are becoming increasingly sophisticated technical going popularity as separate profession with expansion of educational facilities in the country More young people are taking part in sports as a daily feature of their life. The participation in sports and physical fitness increase an individual productivity, it also promotes social harmony and discipline.

METHODOLOGY

Selection of Subjects:

For the purpose of this study eighty male judo players of Inter University level (ten from each weight category) were selected as subjects for the study.

Selection of Variables:

The variables selected for this study were as follows:-

- Orientation Ability
- Differentiation Ability
- Reaction Ability
- Balance Ability
- Rhythm Ability

Collection of Data:

The data was collected for each variable administering their respective tests. The tests were administered at Basketball Court of Lakshmbai National Institute of Physical Education, Gwalior. To ensure that the data collected was reliable, each subject was given sufficient number of trials to perform the respective test for each variable. The tests used were explained to the subjects prior to their administration. The subjects were given chance to practice the tests and made them familiar with.

Statistical Technique:

To compare the coordinative abilities of Judokas among different weight categories, analysis of variance (ANOVA) was employed at .05 level of significance.

RESULTS OF THE STUDY

Table No.01: Analysis of Variance of Orientation Ability among All Weight Categories of Judokas

Source of variation	Df	SS	MSS	F-Ratio
Between Groups	7	1.929	0.276	1.847*
With in Groups	72	10.746	0.149	

F 0.05 (7,72) = 2.15

Table -1 revealed that there was not any significant difference in different weight categories in relation to orientation ability, as obtained F ratio was 1.84, which was lower value than the value 2.15 required for F-ratio to be significant at 0.05 level with (7, 72) degree of freedom.

Table - 2: Analysis of Variance of Differentiation Ability among All Weight Categories of Judokas

Source of variation	df	SS	MSS	F-Ratio
Between Groups	7	214.5	30.65	6.659*
With in Groups	72	331.4	4.603	

F 0.05 (7,72) = 2.15

Table - 2 revealed that there was significant difference in different weight categories in relation to differentiation ability, as obtained F ratio was 6.659, which was higher value than the tabulated value 2.15 required for F-ratio to be significant at 0.05 level with (7, 72) degree of freedom.

Since the one way analysis of variance was found significant in relation to Differentiation Ability, the least significant difference (LSD) test was applied to find out which of the differences of the means amongst the different weight categories were statistically significant.

Table - 3: Least Significant Difference Post-Hoc Test for Mean of All Weight Categories in Relation to Differentiation Ability

Weight Categories								M.D.	C.D.
Below 56 kg.	Below 60 kg.	Below 66 kg.	Below 73 kg.	Below 81 kg.	Below 90 kg.	Below 100 kg.	Open		
7.10	7.10							.000	
7.10		7.60						.500	

7.10			9.20					2.10*	
7.10				8.80				1.70	
7.10					9.60			2.50*	
7.10						11.0		3.90*	
7.10							11.8	4.70*	
	7.10	7.60						.500	
	7.10		9.20					2.10*	
	7.10			8.80				1.70	
	7.10				9.60			2.50*	
	7.10					11.0		3.90*	
	7.10						11.8	4.70*	
		7.60	9.20					1.60	
		7.60		8.80				1.20	1.918
		7.60			9.60			2.00*	
		7.60				11.0		3.40	
		7.60					11.8	4.20	
			9.20	8.80				.400	
			9.20		9.60			.400	
			9.20			11.0		1.80	
			9.20				11.8	2.60*	
				8.80	9.60			.800	
				8.80		11.0		2.20*	
				8.80			11.8	3.00*	
					9.60	11.0		1.40	
					9.60		11.8	2.20*	
						11.0	11.8	.800	

* Significant at .05 level.

It is evident from table – 3 that mean differences of all weight categories in relation to differentiation ability was found to be significant between below 56 kg. and below 73 kg., Below 56 and 90 kg., Below 56 kg. and Below 100 kg., Below 56 kg. and open, Below 60 and below 73 kg., Below 60 and below 90, Below 60 and below 100, Below 60 and open, below 66 and below 90, Below 66 and 100, Below 66 and open, Below 73 and open, Below 81 and below 100, Below 81 and open, Below 90 and open.

Mean difference between table – Below 56 kg. and 60 kg., Below 56 kg. and below 66 kg., Below 56 kg. and below 66 kg., Below 56 and below 73 kg., Below 66 and below 73 kg., Below 66 kg. and below 81 kg., Below 66 and below 90 kg., Below 73 kg. and below 81 kg., Below 73 kg. and below 90 kg., Below 81 kg. and below 90 kg., Below 81 kg. and 100 kg., Below 100 kg. and open, did not prove to be significant at .05 level of confidence.

Table – 4: Analysis of Variance of Reaction Ability among All Weight Categories of Judokas

Source of variation	df	SS	MSS	F-Ratio
Between Groups	7	1.775	.254	7.279*
With in Groups	72	2.507	0.35	

F 0.05 (7,72) = 2.15

Table –4 revealed that there was significant difference in different weight categories in relation to reaction ability, as obtained F ratio was 7.279, which was higher value than the tabulated value 2.15 required for F-ratio to be significant at 0.05 level with (7, 72) degree of freedom.

Since the one way analysis of variance was found significant in relation to Reaction Ability, the least significant difference (LSD) test was applied to find out which of the differences of the means amongst the different weight categories were statistically significant.

Table – 5: Least Significant Difference Post-Hoc Test for Mean of All Wight Categories in Relation to Reaction Ability

Weight Categories								M.D.	C.D.
Below 56 kg.	Below 60 kg.	Below 66 kg.	Below 73 kg.	Below 81 kg.	Below 90 kg.	Below 100 kg.	Open		
1.369	1.313							.056	
1.369		1.521						.152	
1.369			1.497					.128	
1.369				1.599				.230*	
1.369					1.555			.186*	
1.369						1.729		.360*	
1.369							1.775	4.60*	
	1.313	1.521						.201*	
	1.313		1.497					.184*	
	1.313			1.599				.286*	
	1.313				1.555			.242*	
	1.313					1.729		.416*	
	1.313						1.775	.462*	
		1.521	1.497					.024	
		1.521		1.599				.078	.167
		1.521			1.555			.034	
		1.521				1.729		.208*	
		1.521					1.775	.254*	
			1.497	1.599				.102	
			1.497		1.555			.058	
			1.497			1.729		.232*	
			1.497				1.775	.278*	
				1.599	1.555			.044	
				1.599		1.729		.130	
				1.599			1.775	.176*	
					1.555	1.729		.174*	
					1.555		1.775	.220*	
						1.729	1.775	.046	

* Significant at .05 level.

It is evident from table – 5 that mean differences of all weight categories in relation to reaction ability was found to be significant between below 56 kg. and below 81 kg., Below 56 kg. and below 90 kg., Below 56 kg. and Below 100 kg., Below 56 kg. and open, Below 60 kg. and below 66 kg., Below 60 kg. and below 73kg., Below 60 kg. and below 81 kg., Below 60 kg. and 90 kg., below 60 kg. and below 100 kg., Below 60 kg. and open, Below 66 kg. and below 100 kg., Below 66 kg. and open, Below 73 kg. and below 100 kg., Below 73 kg. and open, Below 81 kg. and open, Below 90 kg. and below 100 kg., Below 90 kg. and open, Below 73 and Below 100kg.

Mean difference between table – Below 56 and 60, Below 56 and below 66, Below 56 and below 81, Below 60 and below 66, Below 60 and below 81, Below 66 and below 73, Below 66 and below 81, Below 73 and below 81, Below 73 and below 90, Below 81 and 90, Below 90 and 100, Below 81 and 100, Below 100 and open did not prove to be significant at .05 level of confidence.

Table – 6: Analysis of Variance of Balance Ability among All Weight Categories of Judokas

Source of variation	df	SS	MSS	F-Ratio
Between Groups	7	69.754	9.965	8.445*
With in Groups	72	84.962	1.180	

$F_{0.05}(7,72) = 2.15$

Table –6 revealed that there was significant difference in different weight categories in relation to balance ability, as obtained F ratio was 8.445, which was higher value than the tabulated value 2.15 required for F-ratio to be significant at 0.05 level with (7, 72) degree of freedom.

Since the one way analysis of variance was found significant in relation to Balance Ability, the least significant difference (LSD) test was applied to find out which of the differences of the means amongst the different weight categories were statistically significant.

Table – 7: Least Significant Difference Post-Hoc Test for Mean of All Wight Categories in Relation to Balance Ability

Weight Categories								M.D.	C.D.
Below 56 kg.	Below 60 kg.	Below 66 kg.	Below 73 kg.	Below 81 kg.	Below 90 kg.	Below 100 kg.	Open		
5.894	6.007							.113	
5.894		6.217						.323	
5.894			6.649					.755	
5.894				6.856				.962	
5.894					7.648			1.754*	
5.894						8.625		2.731*	
5.894							7.975	2.081*	
	6.007	6.217						.201	
	6.007		6.649					.642	
	6.007			6.856				.849	
	6.007				7.648			1.64*	
	6.007					8.625		2.61*	

	6.007						7.975	1.96*	
		6.217	6.649					.432	
		6.217		6.856				.639	.971
		6.217			7.648			1.43*	
		6.217				8.625		2.40*	
		6.217					7.975	1.75*	
			6.649	6.856				.207	
			6.649		7.648			.999	
			6.649			8.625		1.97*	
			6.649				7.975	1.32*	
				6.856	7.648			.792	
				6.856		8.625		1.76*	
				6.856			7.975	1.11*	
					7.648	8.625		.977*	
					7.648		7.975	.327	
						8.625	7.975	.650	

* Significant at .05 level.

It is evident from table – 7 that mean differences of all weight categories in relation to balance ability was found to be significant between below 56 kg. and below 90 kg., Below 56 kg. and below 100 kg., Below 56 kg. and open, Below 60 kg. and Below 90 kg., Below 60 kg. and below 100 kg., Below 60 kg. and open, Below 66 kg. and below 90 kg., Below 66 kg. and 100 kg., below 66 kg. and open, Below 73 kg. and 90 kg., Below 73 kg. and below 100 kg., Below 73 kg. and open, Below 81 kg. and below 100 kg., Below 81 kg. and open, Below 90 kg. and Below 100 kg..

Mean difference between table – Below 56 kg. and 60 kg., Below 56 kg. and below 66 kg., Below 56kg and Below 73, Below 56kg and Below 81 kg, Below 60 kg. and below 66 kg., Below 66 kg. and below 73 kg., below 60 and Below 81 kg, Below 66 and Below 81kg, Below 73 kg. and below 81 kg., Below 81 and 90, Below 90 kg. and open, Below 100 and open did not prove to be significant at .05 level of confidence.

Table – 8: Analysis of Variance of Rhythm Ability among All Weight Categories of Judokas

Source of variation	Df	SS	MSS	F-Ratio
Between Groups	7	2653.5	379.0	2.160*
With in Groups	72	12636.9	175.5	

F 0.05 (7,72) = 2.15

Table – 8 revealed that there was significant difference in different weight categories in relation to Rhythm ability, as obtained F ratio was 2.160, which was higher value than the tabulated value 2.15 required for F-ratio to be significant at 0.05 level with (7, 72) degree of freedom.

Since the one way analysis of variance was found significant in relation to Rhythm Ability, the least significant difference (LSD) test was applied to find out which of the differences of the means amongst the different weight categories were statistically significant.

Table – 9: Least Significant Difference Post-Hoc Test for Mean of All Wight Categories in Relation to Rhythm Ability

Weight Categories								M.D.	C.D.
Below 56 kg.	Below 60 kg.	Below 66 kg.	Below 73 kg.	Below 81 kg.	Below 90 kg.	Below 100 kg.	Open		
.865	.898							.033	
.865		.906						.041	
.865			.991					.126	
.865				.966				.101	
.865					1.065			.200	
.865						1.281		.416*	
.865							1.464	.599*	
	.898	.906						.008	
	.898		.991					.093	
	.898			.966				.068	
	.898				1.065			.167	
	.898					1.281		.383*	
	.898						1.464	.566*	
		.906	.991					.085	
		.906		.966				.060	.274
		.906			1.065			.159	
		.906				1.281		.375*	
		.906					1.464	.558*	
			.991	.966				.025	
			.991		1.065			.074	
			.991			1.281		.290*	
			.991				1.464	.473*	
				.966	1.065			.099	
				.966		1.281		.315*	
				.966			1.464	.498*	
					1.065	1.281		.216	
					1.065		1.464	.399*	
						1.281	1.464	.183	

* Significant at .05 level.

It is evident from table – 10 that mean differences of all weight categories in relation to rhythm ability was found to be significant between below 56 kg. and below 100 kg., Below 56 kg. and open, below 60 and below 100 kg., below 60 and open below 66 and below 100 kg., below 66 and open below 73 and below 100 kg. Below 73 and open below 81 and below 100 kg., below 81 and open. Below 90 and open.

Mean difference table – 9 below 56 and below 60, below 56 and below 66, below 56 and below 73, below 56 and below 81, below 56 and below 90, below 60 and below 66, below 60 and below 66, below 60 and below 73, below 60 and below 81, below 60 and below 90, below

66 and below 73, below 66 and below 81, below 66 and below 90, below 73 and below 81, below 73 and below 90, below 81 and below 90, below 90 and below 100, below 100 and open. Did not prove to be significant at 0.05 level of confidence.

Discussion and Findings

No significant difference was found among all weight categories in relation to orientation ability and on the other hand significant difference was found in all weight categories in differentiation ability, reaction ability, balance ability and rhythm ability.

Orientation ability is the ability to determine and change the position and movement of the body in time and space in relation to definite field of action. No significant difference in different weight categories might be due to the reasons that kinesthetic sense organs assume more importance for orientation, and the Judokas of all weight categories require and use same level of kinesthetic sense.

Differentiation ability is the ability to achieve a high level of fine tuning or harmony of individual movement phases and body part movements. Significant difference between different weight categories in relation to differentiation ability might be due to the reason that the Judokas of different weight categories have different level of tuning and harmony of individual movement phase and body part movements. Judokas of low weight category might have high level of tuning and harmony due to less weight.

Significant difference in Balance ability, Reaction ability, Rhythm ability in all weight categories might also be due to the same reasons i.e. difference in adiposity.

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