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**Dr. Rajpal Singh Dhanda**  
Asst. Prof. Physical education  
Chotu Ram Kisan College, Jind,  
Haryana, India

## Comparative analysis of selected physical fitness components women judo players of weight categories

**Dr. Rajpal Singh Dhanda**

### Abstract

The purpose of the study was to compare the selected physical fitness components of female judo players. The data was collected on various selected physical fitness components (Strength, Power, Speed, Agility, and Endurance). In total number of judo players consisting of three weight categories i.e. Light weight, Middle weight, and Heavy weight analyzed to find out the result. 60 mt run test, shuttle run test 9 min run/walk test 8 lbs shot put test standing broad jump were the test to analyse physical fitness components. Mean, SD., SED, and t-ratio were used to analyse the data. The results revealed that heavy Weight judo players were significantly better component in physical fitness as compare to the middle weight judo players were significantly better in power, speed, agility and endurance component of physical fitness as compare to the light weight judo players and heavy weight judo players.

**Keywords:** Physical fitness, judo, weight categories

### Introduction

#### Method

The investigation is survey type where the investigator conducted the survey on judo players of SAI center of North India. The data was collected on various selected physical fitness components (Strength, Power, Speed, Agility, and Endurance). In total number of judo players consisting of three weight categories i.e. Light weight, Middle weight, and Heavy weight analyzed to find out the result.

**Tool used:** To collect the data of physical fitness components of judo players following test were used:-

- |               |                     |
|---------------|---------------------|
| 1. Speed:     | 60 mt Run Test      |
| 2. Agility    | Shuttle Run Test    |
| 3. Endurance: | 9 min Run/Walk Test |
| 4. Strength:  | 8 lbs Shot Put Test |
| 5. Power:     | Standing Broad Jump |

**Administration of the test:** The data was collected by administration of the test. Then test were conducted with the help of judo coaches of SAI centers of north India, the test were explained by giving a demonstration to the subject. A trial chance was also given to the subjects.

**Reliability of the test:** To establish the reliability of the selected test items of physical fitness components; test-retest method was used and reliability for various test items have been ranged between 0.91 and 0.95 which is recommendable and reliable to collect the data.

**Statistical Technique:** Statistical Technique such as Mean, SD., SED, and t-ratio were used to find significances for each item for the three weight categories was observed through the mean score of each category.

### Results

The result for testing physical fitness components have been shown in the tables 1, 2, 3, 4, 5. Speed, Agility AND Endurance of women judo players belonging to different weight

**Corresponding Author:**  
**Dr. Rajpal Singh Dhanda**  
Asst. Prof. Physical education  
Chotu Ram Kisan College, Jind,  
Haryana, India

categories have been found highly significant. Judo players belonging to middle weight category have been found significantly high on Power, Speed, Agility, and Endurance as compare to other weight category and wrestlers belonging to heavy weight category have been found significantly high in strength.

**Discussion of the Result: The results have been interpreted and discussed as under**

**Table 1:** t-Ratio between Mean Speed Scores of Light, Middle & Heavy Weight Judo Players

Weight	N	Mean	t-ratio		
			A1	A2	A3
Light Weight (A1)	62	8.10	-	*2.55	0.20
Middle Weight (A2)	60	7.89	-	-	*2.24
Heavy Weight (3)	45	8.21	-	-	-

Note: \*Denotes the significant at 0.05 level.

The result of t-test show that there exist significance different between light weight (A1) judo players and Middle weight (A2) judo players and Heavy weight (A3) judo players and Middle weight (A2) judo players, which are 2.24 and 2.55 respectively. This implied that there exist significance differences in Speed component of Physical Fitness between Light Weight and Middle Weight or Heavy Weight and Middle Weight judo players. The mean of Heavy Weight judo players (8.12 sec.) is higher than the light weight judo players (8.10sec.) and Middle weight judo players (7.89 sec.). It further meant that middle weight judo players were significantly better in Speed component in Physical Fitness as compare to the Light Weight judo players, who were better than the Heavy weight judo players. But light weight (A1) and Heavy Weight (A3) judo players not significant because the t-ratio shows there is no significant difference between them.

**Table 2:** t-Ratio between Mean Agility Scores of Light, Middle & Heavy Weight Judo Players

Weight	N	Mean	t-ratio		
			A1	A2	A3
Light Weight (A1)	62	23.57	-	*2.29	1.31
Middle Weight (A2)	60	22.96	-	-	*3.23
Heavy Weight (3)	45	23.87	-	-	-

Note: Denotes the significant at 0.05 level.

From the above table, the results of t-test show that there exist significance between Light Weight (A1) judo players and Middle weight (A2) judo players and Heavy weight (A3) judo players and Middle weight (A2) judo players, which are 2.29 and 3.23 respectively. This implied that there exist significance differences in Agility component of Physical Fitness between Light Weight and Middle Weight or Heavy Weight and Middle Weight judo players. The mean of Heavy Weight judo players (23.87 sec.) is higher than the light weight judo players (23.57 sec.) and Middle weight judo players (22.96 sec.). It further meant that middle weight judo players were significantly better in Agility component in Physical Fitness as compare to the Light Weight judo players, who were better than the Heavy weight judo players. But light weight (A1) and Heavy Weight (A3) judo players not significant because the t-ratio shows there is no significant difference between them.

**Table 3:** t-Ratio between Mean Endurance Scores of Light, Middle & Heavy Weight Judo Players.

Weight	N	Mean	t-ratio		
			A1	A2	A3
Light Weight (A1)	62	2.99	-	1.26	*3.68
Middle Weight (A2)	60	3.06	-	-	4.62
Heavy Weight (3)	45	2.74	-	-	-

Note: \*denotes the significant at 0.05 level.

The result of t-test show that there exist significance different between Middle weight (A2) judo players and Heavy weight (A3) and Heavy weight (A3) judo players and Middle weight (A1) judo players, which are 4.62 and 3.68 respectively. This implied that there exist significance differences in Endurance component of Physical Fitness between Middle Weight and Heavy Weight or Heavy Weight and Middle Weight judo players. The mean of Middle Weight judo players (3.06 km.) is higher than the light weight judo players (2.99 km.) and Heavy weight judo players (2.75 km.). It further meant that middle weight judo players were significantly better in Endurance component in Physical Fitness as compare to the Light Weight judo players, who were better than the Heavy weight judo players. t-ratio shows there is no significant difference between Light Weight and Middle Weight judo players.

**Table 4:** t-Ratio Between Mean Strength Scores of Light, Middle & Heavy Weight Judo Players.

Weight	N	Mean	t-ratio		
			A1	A2	A3
Light Weight (A1)	62	6.63	-	*7.36	*16.07
Middle Weight (A2)	60	7.55	-	-	*9.40
Heavy Weight (3)	45	8.70	-	-	-

Note: \*denotes the significant at 0.05 level.

The result of t-test show that there exist significance different between light weight (A1) judo players and Middle weight (A2) judo players and Middle weight (A2) judo players and Heavy weight (A3) judo players and Heavy weight (A3) judo players and Light Weight (A1) Judo players, which are 7.36, 16.07 and 9.40 respectively. This implied that there exist significance differences in Strength component of Physical Fitness between Light Weight, and Middle Weight or Heavy Weight judo players. The mean of Heavy Weight judo players (8.07 mt.) is higher than the Middle weight judo players (7.55 mt.) and Light weight judo players (6.63 mt.). It further meant that Heavy weight judo players were significantly better in Strength component in Physical Fitness as compare to the Middle Weight judo players, who were better than the Light weight judo players. This may be depending upon the body weight of the judo players which is gain with the increase in age and may decline in the early stage of the star of the training from light weight to heavy weight.

**Table 5:** t-Ratio Between Mean Power Scores of Light, Middle & Heavy Weight Judo Players.

Weight	N	Mean	t-ratio		
			A1	A2	A3
Light Weight (A1)	62	2.11	-	*6.10	*1.28
Middle Weight (A2)	60	2.38	-	-	*6.32
Heavy Weight (3)	45	2.06	-	-	-

Note: \*denotes the significant at 0.05 level.

The result of t-test show that there exist significance different between light weight (A1) judo players and Middle weight (A2) judo players and Middle weight (A2) judo players and Heavy weight (A3) judo players which are 6.10 and 6.32 respectively. This implied that there exist significance differences in Power component between Light Weight, and Middle Weight or Middle Weight and Heavy Weight judo players. The mean of Middle Weight judo players (2.38 mt.) is higher than the Light Weight judo players (2.11 mt.) and Heavy Weight judo players (2.06 mt.). It further meant that Middle weight judo players were significantly better in Power component in Physical Fitness as compare to the Light Weight judo players, who were better than the Heavy weight judo players.

### **Conclusion of the Result**

It further meant that heavy Weight judo players were significantly better component in physical fitness as compare to the middle weight judo players were significantly better in power, speed, agility and endurance component of physical fitness as compare to the light weight judo players and heavy weight judo players.

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