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Comparative study of flexibility, leg muscle power and agility of sedentary people and different games players

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Abstract

The aim of the investigation was to compare the flexibility, leg muscle power and agility of among judo, taekwondo and sedentary people. The current investigation has been taken on the female subjects for the investigation. The sources from judo, taekwondo and sedentary people of Amravati district were taken as sources of data. They were selected into three groups of fifteen participants each. The age groups of the 20 to 25 years were recruited, with their consent. For the objective of the investigation variables were considered for this study as flexibility, leg muscle power and agility. It was measured by using the standard test items of agility measured by shuttle run test, flexibility measured by sit and reach test and leg muscle power measured by vertical jump test. The comparisons among three groups were made by applying One-Way ANOVA. LSD post-hoc was employed where mean differences were found significant. The level of significance was accepted at ($p < 0.05$). Statistical Package for Social Sciences (SPSS) was used for statistical analysis. Result: There is significant difference of flexibility, leg muscle power and agility components among judo, taekwondo and sedentary people.

Keywords: physical fitness, sedentary people

Introduction

The importance of physical education and activity was recognized by Plato when he said "Lack of activity destroys the good conditions of every human being, while movement and methodical physical exercise save it and pressure it." when human movement is combined with the universal drive of play ^[1]. Today it is all opposite, i.e., physical activity is less, environment is polluted, unhygienic conditions exist all around, life is full of stresses, unbalanced diet etc. All these factors have reduced the efficiency of humans. Today, we desperately require physical fitness not only to improve our abilities but also to improve our health and wellness. This will also help to develop healthy environment around us along with community health, thus nation will be benefited. By the physical fitness programmes, we can improve our fitness, wellness and health ^[2].

Methodology:

The current investigation has been taken on the female subjects for the investigation. The sources from judo, taekwondo and sedentary people of Amravati district were taken as sources of data. They were selected into three groups of fifteen participants each. The age groups of the 20 to 25 years were recruited, with their consent. For the objective of the investigation variables were considered for this study as Flexibility, Leg Muscle Power and agility. It was measured by using the standard test items of Agility measured by Shuttle Run Test, Flexibility measured by Sit and Reach Test and Leg Muscle Power measured by Vertical Jump Test

Statistical analysis

All the values are expressed as Mean \pm Standard Deviations (SD). The comparisons among three groups were made by applying One-Way ANOVA. LSD post-hoc was employed where mean differences were found significant. The level of significance was accepted at ($p < 0.05$). Statistical Package for Social Sciences (SPSS) was used for statistical analysis.

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Table 1: shows the mean ± standard deviations of Flexibility, Leg Muscle Power and agility by Judo, taekwondo and sedentary people.

Variables	Group	Mean	Standard Deviations
Flexibility	Judo	38.00	6.39
	Taekwondo	32.67	6.83
	Sedentary People	28.80	6.66
Leg Muscle Power	Judo	39.40	5.54
	Taekwondo	31.33	6.44
	Sedentary People	22.40	2.56
Agility	Judo	10.09	0.65
	Taekwondo	10.20	0.66
	Sedentary People	12.15	0.49

Table 2: ANOVA table showing comparison of flexibility, leg muscle power and agility among Judo, taekwondo and sedentary people

Variables	Source of Variation	SS	DF	MS	F
Flexibility	Between Groups	640.18	2	320.09	7.284*
	Within Groups	1845.73	42	43.95	
Leg Muscle Power	Between Groups	2169.38	2	1084.69	41.320*
	Within Groups	1102.53	42	26.25	
Agility	Between Groups	40.10	2	20.05	55.141*
	Within Groups	15.27	42	0.36	

Above table-2 revealed that there was significant difference in judo, taekwondo and sedentary people components flexibility, leg muscle power and agility as obtained F-ratio was 7.284,

41.320 and 55.141 which was greater than that of required tabulated 'F' value of 2.790 at .05 level of significance with (2, 42) degree of freedom.

Table 3: Post hoc table showing mean difference of flexibility of judo, taekwondo and sedentary people

Judo	Taekwondo	Sedentary People	M.D.	C.D.
38.00	32.67		5.333*	4.938
38.00		28.80	9.200*	4.938
	32.67	28.80	3.867	4.938

Table 3 shows the mean difference among judo, taekwondo and sedentary people. For the variable flexibility, the mean difference between judo and taekwondo (5.333), judo and sedentary people (9.200) as the mean difference of above two was greater than the critical differences. Insignificant difference was found between the means of taekwondo and sedentary female players as the mean difference was less than the critical difference.

mean difference between judo and taekwondo (8.067), judo and sedentary people (17.000), taekwondo and sedentary (8.933) as the mean difference of above was greater than the critical differences.

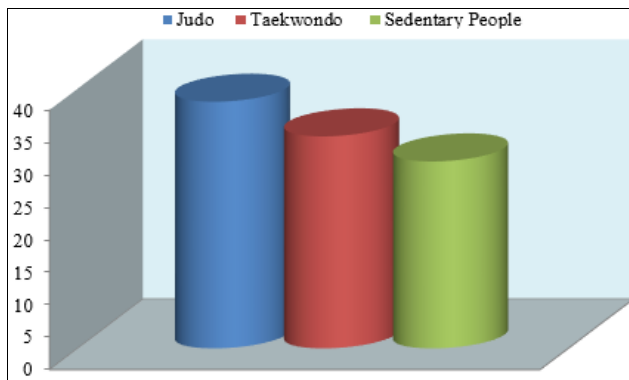


Fig 1: Mean difference of flexibility of judo, taekwondo and sedentary people

Table 4: Post hoc table showing mean difference of leg muscle power of judo, taekwondo and sedentary people

Judo	Taekwondo	Sedentary People	M.D.	C.D.
39.40	31.33		8.067*	3.817
39.40		22.40	17.000*	3.817
	31.33	22.40	8.933*	3.817

Table 4 shows the mean difference among judo, taekwondo and sedentary people. For the variable leg muscle power, the

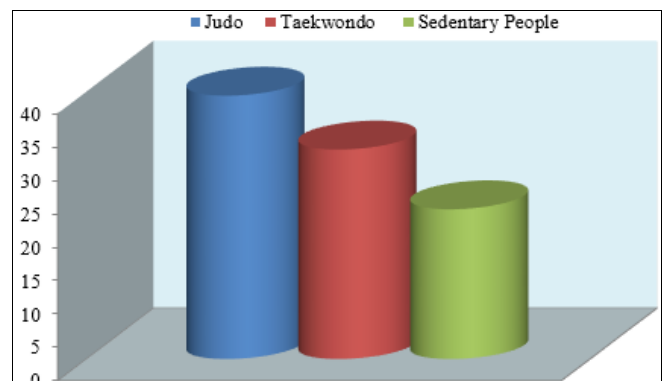


Fig 2: Mean difference of leg muscle power of judo, taekwondo and sedentary people

Table 5: Post hoc table showing mean difference of agility of judo, taekwondo and sedentary people

Judo	Taekwondo	Sedentary People	M.D.	C.D.
10.09	10.20		0.113	0.449
10.09		12.15	2.056*	0.449
	10.20	12.15	1.944*	0.449

Table 5 shows the mean difference among judo, taekwondo and sedentary people. For the variable agility, the mean difference between judo and sedentary people (2.056), taekwondo and sedentary (1.944) as the mean difference of above was greater than the critical differences. Insignificant difference was found between the means of judo and

taekwondo female players as the mean difference was less than the critical difference.

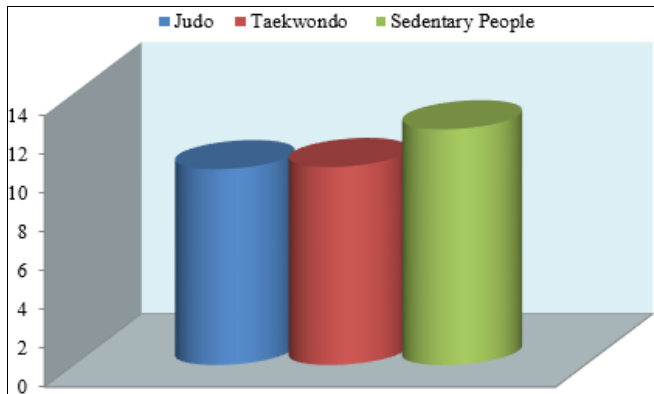


Fig 3: Mean difference of agility of judo, taekwondo and sedentary people

Conclusion

From the analysis of the data the following conclusions are drawn

1. There is significant difference of flexibility component among judo, taekwondo and sedentary people.
2. There is significant difference of leg muscle power component among judo, taekwondo and sedentary people.
3. There is significant difference of agility component among judo, taekwondo and sedentary people.

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