



A COMPARATIVE STUDY OF SELECTED ANTHROPOMETRIC VARIABLES AND PHYSICAL FITNESS VARIABLES WITH THE JUDO SPECIAL FITNESS TEST PERFORMANCE OF JUDOKAS

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ABSTRACT:

A large number of previous researches on the SJFT focused on how different judokas performed on this test; little focus has been placed on the relationship between certain judo actions and significant characteristics associated with judo players' performance. This study set out to determine the relationship between anthropometric measurements, physical fitness, and a special judo fitness test. Methods 06 university-level female judokas were evaluated for certain anthropometric and physical fitness factors, as well as specific judo fitness level (mean standard deviation: 153.83 ± 5.70cm of height, 63.83± 3.65cm of arm's length, and 22.18 ± 1.12 kg/m² of BMI). Results SJFT and height had an inverse relationship (P<0.05). Additionally, there was a significant relationship found between SJFT and physical fitness. Similarly, there is an inverse association between the SJFT index and lower body strength, vertical jump, and height (P<0.05). Conclusions Because anaerobic metabolism appears to be highly correlated with physical characteristics like strength, speed, and anaerobic power, it appears that outstanding performance in particular judo moves depends significantly on anaerobic metabolic proficiency.

INTRODUCTION:

The modern martial art and sport of judo has its beginnings in Japan in the late 19th century. Jigoro Kano, a Japanese educator and martial artist, founded it in 1882. Competition judo can be characterized as a combative, high-intensity sport in which the competitor tries to control the opponent through groundwork combat or throw him onto his back. Both activities depend on certain tactics, tactical know-how, and strong physical fitness. Judo players at the highest levels should have not much body fat since the sport is based on weight categories. It has been proposed that success could be differentiated based on body fat percentage.

Judo is a combat sport in which the movements are quick and forceful, usually against the force of the opponent. It is an activity with different levels of effort. The non-stop periods of maximum or maximum effort that occur throughout competitions are broken up by longer or shorter rests.

Judokas' levels of fitness are assessed with the SJFT, a particular judo fitness test that measures their degrees of effort endurance. This test involves a particular movement (throw) from the ippon-seoi-nage techniques and is intermittent in nature with gaps in between tests.

A physical evaluation is an essential stage in the training process because it identifies variables that need to be improved and assesses the efficacy of a particular training plan. In order to characterize and understand potential anthropological factors and unique judo fitness levels in Indian judo practitioners, the present study was carried out.

Method and Procedure:

- **Selection of Subject-:** Using a purposive sampling technique, a total of six university-level female judokas were chosen as a sample based on their performance in various university-level competitions held throughout the years 2021–2022. The people ranged in age from 17 to 24.
- **Selection of the Variables:** The researcher has chosen anthropometric parameters (height, weight, arm length, and leg length BMI) and motor variables (50m and Sargent jump) under the independent variables heading. The performance of SJFT was evaluated using dependent variables during several university-level judo competitions held in the years 2021–2022.
- ✓ Sargent's jump was used as a test for the lower body's explosive strength. The distance in centimeters between the starting hand-extended position and the highest point on the graded wall that was touched during the explosive jump. The subject's best performance was taken into consideration after three attempts.
- ✓ A single, 50-meter maximum sprint is conducted as part of the test, and the timing is recorded. The best time is recorded to the closest two decimal places after two trials.
- ✓ **Special Judo Fitness Test-:** One 15-second and two 30-second segments of SJFT are separated by 10-second rest periods. The test-taking athlete (tori) maintains a space of 3 meters between each partner while throwing them using the ippon-seoi-nage technique. The tori and both partners should be roughly the same height and weight. Within a minute and immediately following the test, the heart rate is recorded. The following index is calculated by putting heart rate and throws into a related equation:
Index SJFT= (Final HR (bpm) – HR (bpm) 1 min after test)/number of throws
- **Statistical Technique:** Quantitative variables were analyzed statistically, and mean and standard deviation were used to summarise them. where the p-value's significance was 0.05 to assess the degree to which performance (number of throws) in a particular judo fitness test correlates with body weight/body height The correlation coefficient for Karl Pearson, a judo player, was calculated.

Results and Findings of the Study:

- Results of anthropometric and physical fitness variables and correlation with SJFT results.

S.N	Variable	Mean	SD	r
1.	Height, cm	153.83	5.70	-0.804
2.	Weight, kg	52.50	5.11	-0.839
3.	Arm length, cm	63.83	3.65	-0.699
4.	Leg length,cm	92.16	2.99	-0.270
5.	BMI, kg/m ²	22.18	1.12	-0.340
6.	Speed, sec.	6.43	.460	-0.298
7.	Sargent's jump, cm	2.69	.416	-0.022

Discussion

The findings show no meaningful correlation between speed and SJFT outcomes. Height and SJFT outcomes were strongly correlated (P 0.05). There was an inverse link. This shows a link between lengthier structures and more effective performance in particular judo activities. It follows that taller judokas might have more control over how their techniques are applied. The Special Judo Fitness Test and BMI do not significantly correlate. Additionally, there was a weak and non-significant correlation between weight and the SJFT findings. These results lead to the conclusion that superior performance in the SJFT is more influenced by the capacity for producing force, which is primarily dictated by muscle qualities, than by absolute amounts of body mass.

Conclusion

The results of the current study indicate that judokas' success is mostly dependent on a few personal characteristics. For example, big height and strength assist them to become more adept at performing techniques and maintaining balance. Rapid displacements and quickly executed throwing techniques may be aided by speed, agility, dynamic strength, and explosive force in the lower body. A larger range of motion, made possible by favorable flexibility, allows for more effective technique execution.

References

- Katralli, Jayasudha & Goudar, Shivaprasad. (2012). Anthropometric Profile and Special Judo Fitness levels of Indian Judo Players. *Asian journal of sports medicine*. 3. 113-8. 10.5812/asjrm.34710.
- Casals, Cristina & Huertas, Jesús & Franchini, Emerson & Sterkowicz-Przybycień, Katarzyna & Sterkowicz, Stanisław & Gutiérrez-García, Carlos & Escobar-Molina, Raquel. (2017). Special Judo Fitness Test Level and Anthropometric Profile of Elite Spanish Judo Athletes. *Journal of strength and conditioning research / National Strength & Conditioning Association*. 31. 1229-1235.
- Katralli J, Goudar SS. Anthropometric Profile and Special Judo Fitness levels of Indian Judo Players. *Asian J Sports Med*. 2012 Jun;3(2):113-8. doi: 10.5812/asjrm.34710. PMID: 22942997; PMCID: PMC3426730.
- Thakur, Kamender Singh and Sur Sharma. "Comparative study of selected physical fitness variables of university gold medalist judokas and boxers." *International Journal of Yoga, Physiotherapy and Physical Education 2* (2017): 135-137.
- <https://www.kheljournal.com/archives/2023/vol10issue1/PartF/10-2-9-516.pdf>
- <https://paulogentil.com/pdf/Special%20Judo%20Fitness%20Test%20Level%20and%20Anthropometric%20Profile%20of%20Elite%20Spanish%20Judo%20Athletes.pdf>