

# “Effect of Yoga on Health Related Fitness and Performance of Judo Players”

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## Introduction

**Judo** (Judo, meaning "gentle way") is a modern martial art, combat and Olympic sport created in Japan in 1882 by Jigoro Kano. Its most prominent feature is its competitive element, where the objective is to either throw or takedown an opponent to the ground, immobilize or otherwise subdue an opponent with a pin, or force an opponent to submit with a joint lock or a choke. Strikes and thrusts by hands and feet as well as weapons defenses are a part of judo, but only in pre-arranged forms (kata) and are not allowed in judo competition or free practice (randori).

The philosophy and subsequent pedagogy developed for judo became the model for other modern Japanese martial arts that developed from koryu (Traditional schools). The worldwide spread of judo has led to the development of a number of offshoots such as Sambo and Brazilian jiu-jitsu. Judo practitioners are called judoka.

## Statement of the Problem

Judo is one of the sports that need concentration to speed performing different motor skills for attack, hold and Grip. Further, the ability to conduct a bout and use proper tactics is closely connected with the Judoka psychological state, his power of concentration, and self control. Undue nervousness, over-excitation, lack of confidence, overestimation of the opponent's strength, apathy, insufficient warming up, prevalence of inhibitory processes – all these factors may hamper the Judoka in conducting a tactical bout, realisation of tactical solutions, and display of his technical abilities. Conversely, self-control, adequate level of arousal, consciousness of his own experience, and technical and tactical capabilities, positively influence the psychological state of the Judoka, increasing his calm, assurance, dexterity and courage in action. Numerous studies on yoga conducted earlier are sufficient to record its efficacy in improving physical fitness, limited information on health- related- physical fitness of college level players is available. Further, no information on the impact of yoga for health related fitness and skill for Judo players is available so far. It was, therefore, thought desirable to undertake this experimental study entitled “Effect of Yoga on Health Related Fitness and performance of Judo Players”.

## Objectives of the study

The research work was carried out with the following objectives in perspective:

- To measure health related physical fitness of state level male Judoka.
- To measure the Judo skill of elite state level Judoka.
- To design specific yoga schedule especially for the Judo players.
- To see the effect of yoga training on health related physical fitness, and Judo skill of the state level Judoka.

## Hypotheses

H1: There would be significant improvement in flexibility among the Judoka with regards to yoga training.

H2: Yoga training would help to improve abdominal muscles strength of the Judoka.

H3: Yoga training would be effective to maintain normal body fat percentage of the selected Judoka.

H4: There would be significant improvement in cardiovascular endurance among the Judoka as a result of yoga training.

H5: The yoga training may improve Judo skills of state level Judoka.

## Delimitation of the Study

- This study was delimited to the state level Judo players of age 16 to 20 years.
- This study was delimited to health related fitness and Judo skills.
- This study was delimited to 50 state level male Judoka belonging to the state of Maharashtra.

## Limitations of the study

While conducting the experiment, the present investigator has recorded some drawbacks/limitations as follows:

- The investigator had to restrict the Yoga training session for only one-hour daily. This duration should have been increased to record better results. However, depending up on the subjects' availability the duration of the training session has been reduced.
- The subjects of the experimental as well as control groups were totally ignorant of yoga and had no background about the exposure of yoga practices. Although the investigator has taken proper care for teaching the same, however, such a situation may have adverse effect on their cognitive aspect of learning.

## Significance of the Study

- The finding of this study may benefit to all the Judo players and even to other sportsman, since they can use yogic exercise to improve their suppleness of body.
- Judoka as well as athletes may be benefited with the inclusion of yoga in their training schedule.

- The newly designed training schedule of yoga as a result of this study may be beneficial for the students participating in Judo event.
- As yoga deals with the mental and emotional balance it is expected that the result of this study may help the elite Judoka to keep their mental and emotional balance during the difficult practical situation i.e. during stress and tension due to their academic load.

## Methodology

Fifty male Judo players aged 16-20 years (n=50) represented State Championship belonging to Aurangabad District of Maharashtra State, were selected. All the 50 subjects were divided randomly into two groups viz; Group –A (Judo) and Group – B (Judo plus yoga). The design of the experiment has been planned in three phases.

- Phase – I: Pretest
- Phase – II: Training or Treatment, and
- Phase – III: Post test

As the purpose of the study was to see the efficacy of yoga on health related fitness and Judo skills in state level Judo players, all the subject of different experimental and control groups were exposed to health related fitness and Judo skill test to record the pre test data. After the pre test was over, all the subjects of Group A were exposed to a practice of Judo followed by cooling down exercises and Group B participated in the training in Judo followed by Yoga. The training was imparted for both the groups 1 hr. daily in the morning except Sundays and holidays for eight weeks. However, after completion of 1 hr. training, cooling down exercises was given to Group A for 30 minutes, whereas Group B underwent 30 minutes of yoga practices. Finally, when the treatment or training period of 8 week was over, the posttest on all the selected variables were assessed for all the subject of two groups.

## Variables Selected for the Study

Sr. No.	Test Name	Tools used	Measurement Units
1.	Flexibility	Sit and reach	Cm.
2.	Cardiovascular endurance	1 mile run	Min.:Sec.
3.	Abdominal muscle strength	Sit ups	No./min.
4.	Body fat	Skin fold caliper	mm.
5.	Judo skill	Custom made test	Points

### Schedule of cool-down static stretching exercises

Sr. No.	Cool-down exercise	Sr. No.	Cool-down exercise
1.	LONG CALF MUSCLE	7.	Buttock Muscles (Gluteal & Piriformis)
2.	SHORT CALF MUSCLE	8.	Lower Back (Cobra)
3.	HAMSTRING MUSCLE	9.	Trunk Side Flexor
4.	QUADRICEPS	10.	Triceps Muscles
5.	GROIN	11.	Pectoral Muscles
6.	HIP FLEXOR MUSCLE	12.	Bicep and Deltoid Muscles

### Schedule of Yoga practices

Sr. No.	Yoga practices	Sr. No.	Yoga practices
1.	Bhujangasana	9.	Halasana
2.	Ardh-Shalabhsana	10.	Ardh-Matsyendrasana
3.	Ardh-Halasana	11.	Shalabhasana
4.	Vakrasana	12.	Viparitkarani
5.	Chakrasana	13.	Naukasana
6.	Paschimottan	14.	Parvatasana
7.	Dhanurasana	15.	Makrasana
8.	Shavasana	16.	Kapalbhati
	Om chanting		Anulom-Vilom

### Statistical Analysis

Descriptive statistics was applied to process the data. Further the efficacy of the yoga training was evaluated by employing 2 x 2 x 5 Factorial ANOVA.

The result of all these inferential statistics has been further analyzed by using Scheffe's post hoc (follow up) test to assess individual group comparison.

Table 1.1  
Statistical Model for Presentation of Data

Variables (A)	Groups	
	Yoga Training Group (B)	Control Group (C)

	B1 (Pre)	B2 (Post)	C1 (Pre)	C2 (Post)
Body Fat% (A1)	(A1 B1)	(A1 B2)	(A1 C1)	(A1 C2)
Flexibility (A2)	(A2 B1)	(A2 B2)	(A2 C1)	(A2 C2)
Abdominal muscles strength (A3)	(A3 B1)	(A3 B2)	(A3 C1)	(A3 C2)
Cardiovascular Endurance (A4)	(A4 B1)	(A4 B2)	(A4 C1)	(A4 C2)
Foil Test (A5)	(A5 B1)	(A5 B2)	(A5 C1)	(A5 C2)

Table 1.2  
**Model for Factorial Design**  
**(2 x 2 x 5 Factorial ANOVA)**

Factor	Levels	Design
Variables (5)	Body Fat% (A1)	2 x 2 x 5 Factorial ANOVA
	Flexibility (A2)	
	Abdominal Muscles Strength (A3)	
	Cardiovascular Endurance (A4)	
	Foil Test (A5)	
Groups (2)	Yoga Gr. (B1), Control Gr. (B2)	
No. of Testing (2)	Pre-test (C1) and Post test (C2)	

## Major Findings

The data were recorded systematically. The result of descriptive data analysis, factorial ANOVA and Scheffe's post hoc test has been presented below.

- “Judo plus yoga training” showed similar scores like “Judo plus cooling down exercises” in controlling body fat of the Judo players (CD=0.09,  $p>0.05$ ).
- “Judo plus yoga training” showed significant superiority over the “Judo” in improving Flexibility of the Judo players (CD=0.32,  $p<0.05$ ).

- “Judo plus yoga training” showed significant superiority over the “Judo” in improving Abdominal muscles strength of the Judo players (CD=0.30,  $p<0.05$ ).
- “Judo plus yoga training” showed significant superiority over the “Judo” in improving Cardiovascular endurance of the Judo players (CD=0.24,  $p<0.05$ ).
- “Judo plus yoga training” showed significant superiority over the “Judo” in improving Judo skill as measured by Foil test of the Judo players (CD=0.34,  $p<0.05$ ).

## Conclusion

The result helps to draw following conclusion:

After completion of a regular training schedule of 1 hour of Judo, additional application of cooling down exercises for 30 minutes is a conventional practice which in fact brings the body to a normal resting condition at the earliest. However, Inclusion of yoga relaxation instead of cooling exercises has put an added advantage for improving health related physical fitness and skills of the state level Judo players.

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