

# Motor fitness of different form of karate players: A comparative study

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**Abstract**— Many factors, like motor abilities as well as environmental situations, are regarded as having an interacting influence on an individual's selection of achievements in various physical activities. The study's goal was to determine and compare the kata and kumite of karate players' motor fitness in terms of agility and response times. A total number of 60 male karate players classified into two groups (30 Kumite players and 30 Kata players) were selected as subjects from different karate clubs of South 24 Parganas (Kolkata); the age range was 12 - 14 years. In this research, agility and reaction time variables were measured by standard procedures, and SPSS software was used for analysis of data. One-way mean, standard deviation, and “t” ratio statistics were used to find out the significant difference among the groups as well as to observe which group was different from the other groups. The result of the study revealed that there was a significant difference observed in karate players in all the selected variables.

**Index Terms**— Karate players, Kumite, Kata, Agility and Reaction time.

## I. INTRODUCTION

Karate is a popular Japanese martial art with over 10 million athletes and 100 million practitioners in the world. The popularity and scientific interest of karate grew up in the last decades, when the World Karate Federation has been recognized by the International Olympic Committee, and it will make its first appearance as an Olympic Sport at the 2020 Summer Games in Tokyo. Karate is the martial arts in which one is trained to defend and protect himself in any given situation by using the basic technique of Blocking, Punching, Kicking and Striking. Karate also needs to have power, speed, timing, rhythm, breathing and strong spirit, so that our body can be trained as a weapon. The ultimate aim of karate is to develop perfect character, overcoming mental and physical suffering under rigorous discipline. Karate competition consists in a sequence of attacks and defences by using punches and kicks with high speed and power. Success in any sport requires special physiological, psychological, and physical abilities. Physical or physical fitness is the ability to perform physical activity for a long time without experiencing significant fatigue. Increasing physical fitness means increasing the degree of health.

The variation in the level of intensity of personality dimensions should be associated with the specificity of sports competition in the studied sports disciplines. Besides, there are differences between champions and other athletes in combat sports, [1-2] individual sports [3-4] and team sports [5].

## II. MATERIALS AND METHODS

### *Subject of the Study*

In the present investigation, 60 male karate players with age ranging from 12 to 14 years were selected as subjects from different karate clubs of south 24 parganas (Kolkata). The purposive sampling technique was used to selection of subjects. The total number of 60 karate player were classified into two groups as Kumite players (N=30) and Kata players (N=30).

### *Criterion Measures*

**Table 1: Criterion Measures along with Instruments and tools used of selected variables**

PARAMETERS	VARIABLES	METHODS, TOOLS, TECHNIQUE	UNITS
Motor Fitness	Agility	Shuttle run	Time (Sec.)
	Reaction Time	Nelson Hand Reaction Test	cm.

### III. STATISTICAL TECHNIQUE

Analysis of independent t- test was used in this study to find out the selected variables of Karate players. The level of significance was fixed at 0.05 level of confidence which was considered to be appropriate for this study.

### IV. RESULTS

**Table 2: Mean, standard deviation, and t-ratio on agility of Karate players**

Groups	No. of. Subjects	Mean	SD	't'-ratio	p- value
Kumite	30	11.27	1.10	3.84	0.00
Kata	30	10.35	0.70		

Table-2 shows that there is significant difference in agility between Kumite and Kata players at 0.05 level of confidence.

**Table 3: Mean, standard deviation, and t-ratio on reaction time of Karate players**

Groups	No. of. Subjects	Mean	SD	't'-ratio	p- value
Kumite	30	0.18	0.035	3.22	0.00
Kata	30	0.15	0.031		

Table-3 shows that there is significant difference in reaction time between Kumite and Kata players at 0.05 level of confidence.

### V. DISCUSSION ON FINDINGS

The result of the study reveals that there was a significant difference observed on agility and reaction time of Karate players. In Olympic karate [6-7] and handball [8-9], there is direct contact with the opponent, but it is karate that is characterized as a method of self-defense [10-13 3-5], which is a utilitarian factor specific only to combat sports [1-2 14 5].

### VI. CONCLUSION

It was concluded that there was Kumite players are better on agility and reaction time in respect of Kata players. In order to better manage competitive anxiety and improve performance results, coaches, trainers, and sports psychologists should integrate psychological skills training, stress management techniques, and tailored counseling into players' preparation programs.

### VII. ACKNOWLEDGMENT

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