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## The effect of six weeks of Tabata training on selected physiological parameters and mental toughness in sports men

**Manish Mishra and Dr. Sandhya Tiwari**

### Abstract

The purpose of the study was to find the effect of six weeks of Tabata training on selected physiological parameters and mental toughness in sports men. For purpose of the study, a total of twenty six (N -26) sports men of the age group ranged from 17 to 25 year were selected randomly from Indira Gandhi Institute of Physical and Sports Sciences, B- Block Vikaspuri, University of Delhi, New Delhi. Initially the subjects were tested on the selected physiological parameters and mental toughness. Thereafter the subjects were allocated into two Groups: one Experimental (N-16) and the other Control group (N=10). For the purpose of the present study, the Anaerobic Power and Mental Toughness were selected as variables. The necessary data was collected by administering the selected test for the respective variables. All the tests were administered in Indira Gandhi Institute of Physical Education And Sports Sciences, Vikaspuri New Delhi. There was not a significant difference of Tabata training on Anaerobic Power and Mental Toughness among selected subjects.

**Keywords:** Tabata Training, Anaerobic Power, Mental Toughness

### Introduction

As we know that the healthy people constitute a healthy nation. The strength of a nation rests upon the health of its people and future of the health of the people depends, to a large extent, on what is done to promote, improve and preserve the health, as health is a fundamental human right. To be a good man is the first requisite to success in life and to be a nation of healthy citizens is the first condition to national prosperity (Kristensen *et al.*, 2010) <sup>[1]</sup>.

The modern age is an age of competition. In this age, one must be physical fit in all aspects to fight against opponent forces and various obstacles that arise in daily life. Physical fitness is a great weapon for soldiers to fight against enemies. It is a mastermind for scientists, engineers, research scholars, thinkers, investigators, statements and psychologists to achieve success in daily tasks. (Rizzo *et al.*, 2007) <sup>[2]</sup>.

Tabata was found in Japan by Dr. Izumi Tabata. He conducted tests on two groups of athletes; comparing moderate high intensity training with high intensity interval training. There are many different forms of workouts out there and each workout will give you a different result. Some increase muscle mass, some increase strength, others help you lose weight and so forth. Cardiovascular (cardio for short) exercises are a popular brand of exercise designed to improve endurance and stimulate fat loss. Cardio exercises can be anything from long distance running, skipping, biking, or even power walking. (www.tabatatraining.org).

### Methodology

For purpose of the study, a total of twenty six (N -26) sports men of the age group ranged from 17 to 25 year were selected randomly from Indira Gandhi Institute of Physical and Sports Sciences, B- Block Vikaspuri, University of Delhi, New Delhi. Initially the subjects were tested on the selected physiological parameters and mental toughness. Thereafter the subjects were allocated into two Groups: one Experimental (N-16) and the other Control group (N=10).

### Selection of Variables

For the purpose of the present study, the following variables were selected:

- a) Anaerobic Power

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b) Mental Toughness

The necessary data was collected by administering the selected test for the respective variables. All the tests were administered in Indra Gandhi Institute of Physical Education And Sports Sciences, Vikaspuri New Delhi. Before the administration of the test the subjects were briefed about objectives and requirements of the various tests for the present study.

**Administration of Tabata Training**

**Tabata Training**

- The six weeks Tabata training was designed with the help of experts and the literature prior to its implementation. The data on selected physiological and Mental Toughness was collected twice, first initial pre training data and secondly after the completion of six weeks (Post Training) of Tabata training.

**Exercise Schedule:** Tabata protocol used is cited below:

- 5 minutes warm-up
- 8 intervals of 20 seconds all-out intensity exercise

followed by 10 seconds of rest

- 1 minute rest after one set of exercise
- 2 minutes cool-down

The basic outlines of the tabata training method are as follows:

- 4 minutes long ( Whole Tabata Session)
- 20 seconds of intense training
- 10 seconds of rest
- 8 intervals in one set
- Total of 8 sessions or rounds
- 1 minute rest after one set of exercise

The Tabata Training Method is an advanced form of exercise and it requires you to be fit as well as mentally strong. The method is designed so that it last 4 minutes long, however within those 4 minutes you have to go through 8 intervals. Each lasting 20 seconds at a very high intensity

**Analysis and Results**

**Table 1:** Descriptive Statistics (Mean ± Standard Deviation) of Selected Physiological Variables and Mental Toughness for Experimental and Control Group.

Variables	Experimental Group		Control Group	
	Pre	Post	Pre	Post
Anaerobic Power, (kgm/sec)	89.09±9.67	91.03±9.54	88.29±14.422	87.95±14.29
Mental Toughness	177.06±15.64	180.06±12.15	175.70±11.15	173.20±8.28

Table No: 1 shows the mean & standard deviation values of (the pre and post data) selected physiological parameters and mental toughness of Experimental Group & Control Group. The Mean ± SD values of Anaerobic Power and Mental Toughness for pre experimental data were 12.52 ± 2.43 and 177.06 ± 15.644 respectively. Similarly the Mean ± SD values of Anaerobic Power and Mental Toughness for the post Experimental Data were 91.03±9.54 and 180.06 ± 12.15

respectively.

Table no. 1 also reveals the Mean ± SD values of pre initial data of control group for Anaerobic Power and Mental Toughness were 88.29±14.422 and 175.70 ± 11.15 respectively. Similarly the Mean ± SD values post data of Anaerobic Power and Mental Toughness were 87.95±14.29 and 173.20 ± 8.28 respectively.

**Table 2:** Independent Samples t-test for Pre data of Experiment and Control Group for Selected Physiological and Psychological Variables

Variables	t-test for Equality of Means						
	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Anaerobic Power	.171	24	.865	.806	4.709	-8.913	10.526
Mental Toughness	-.239	24	.813	-1.363	5.696	-13.118	10.393

Table no. 5 indicate the t-value of Independent t-test between pre data of Experiment and Control group. The t-values

(df=24) of Anaerobic Power and Mental Toughness were.171 and .239 respectively, which were insignificant at 0.05 level.

**Table 3:** Independent Samples t-test for Post data of Experiment and Control Group for Selected Physiological and Mental Toughness

Variables	t-test for Equality of Means						
	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Anaerobic Power	.662	24	.514	3.084	4.659	-6.532	12.700
Mental Toughness	-1.567	24	.130	-6.863	4.379	-15.901	2.176

Table no. 3 indicate the t-value of Independent t-test between post data of Experiment and Control group. The table above also shows the t-values (df=24) of Anaerobic Power and Mental Toughness that were .662 and 1.567 respectively which were insignificant at 0.05 level.

**Discussion**

There was not a significant difference of Tabata training on Anaerobic Power and Mental Toughness among selected subjects. The mean values of selected variables are shown in following diagrams.

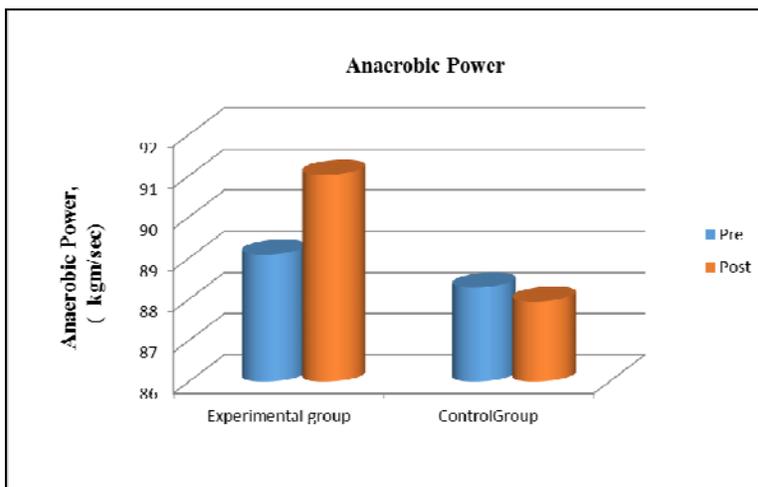


Fig 1: Graphical Representation of Pre & Post Mean Values of Anaerobic power for Experimental and Control Group

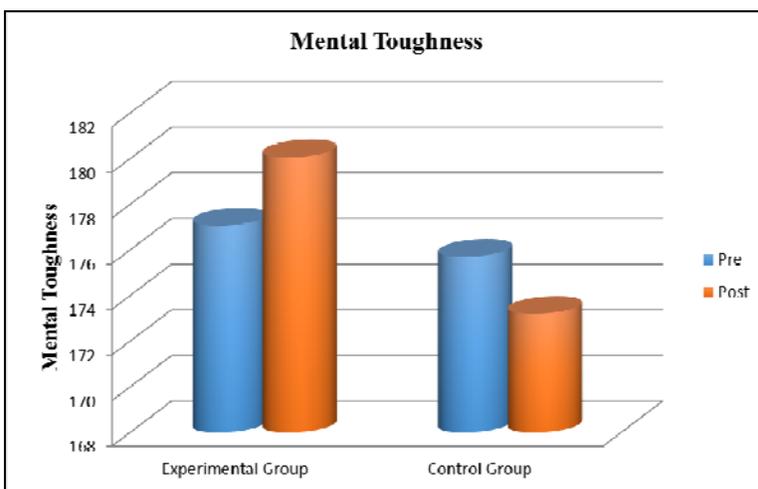


Fig 2: Graphical Representation of Pre & Post Mean Values of Mental Toughness for Experimental and Control Group

**Conclusions**

The six weeks of Tabata training has shown that there were insignificant difference obtained between the Experiment and Control group on Anaerobic Power and Mental toughness. There was a difference between the mean values of post data of Experiment and Control group for above mentioned variables, but this difference is not sufficient to show significant difference at 0.05 level of significance.

**References**

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