



## Upshot of Tabata sprint training on selected speed parameters among men football players

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### Abstract

Sports training is indispensable to accomplish the extreme performance of a football player. But, for soccer performance, speed or dashing skill is essential to complete his top performance. Therefore, further advanced training is a prerequisite of a football player. This research aims to assess whether there is any effect of 12 weeks Tabata sprint training on selected speed parameters among men football players. To accomplish the purpose of the current study thirty footballers who were active in-game age ranged from 20 to 25 years old randomly selected from Chennai (Housing Board Communities around Marina). They are randomly divided and employed into two equal groups, consist of 15 members each. Group-I had Given an hour of Soccer training with Tabata training, and Group-II was control which had not received any unique pieces of exercise apart from the regular activities. The Tabata training has selected as the independent variable. Speed and Speed Endurance have chosen as dependent variables, and all dependent variables measured by standardized test item as 50 meters dash and 110 meters dash. Analysis of Covariance (ANCOVA) would be applied to find out the significant mean differences. In all the cases, the 0.05 level of confidence has fixed to test the level of significance. The results of the study exposed that the experimental group had finished a significant difference in all the selected variables such as Speed and Speed endurance to compare the control group. Hence it was concluded that Tabata sprint training Enhanced Speed and Speed endurance among footballers.

**Keywords:** tabata sprint training, speed, speed endurance

### 1. Introduction

Sports training is indispensable to accomplish the extreme performance of a football player. Therefore, footballers should have undergone a different kind of physical training methods to reach their excellent performance, but, not only they need a regular physical training but also more advanced and practical training. But, for soccer performance, speed or dashing skill is essential to complete his top performance. Speed is vital in high sports, but it's a bit additional so in football since you are running in the field for the most of the part of the game. In soccer, thinking about way further than just sprinting fast. Whereas that is significant, it is the capacity to race at full pace for the whole of a game that matters. Therefore, further advanced training is a prerequisite of a football player.

#### 1.1 Tabata Training

Tabata training is a high-intensity Tabata training (HIIT) workout, featuring exercises that last four minutes. Each activity in a given Tabata workout continues only four minutes, but it's likely to be one of the most extended four minutes you've ever endured.

### 2. Definition of the Terms

#### 2.1 Speed

It is the performance prerequisite to do motor actions under given conditions in minimum of time. (Hardayal Singh, 1991)

#### 2.2 Speed Endurance

It is the ability to do sports movement with high speed under

the conditions of fatigue. Speed endurance is a combination of speed and endurance abilities. (Hardayal Singh, 1991)

### 3. Methodology

#### 3.1 Subjects

For the achievement of the resolution of the current study, the investigator selected a total number of thirty (N=30) footballers had been chosen randomly from Chennai Housing Board Communities around Marina. The participants' age ranged from 20 to 25 years. The subjects were voluntarily participated to conduct the study. They were simplified into two groups. Each group consists of 15 participants, which were assumed to be apt for the study.

#### 3.2 Selection of Variables and Tests

Tabata training profoundly influenced by physical aspects. It had found from the literature that these variables might have a significant effect on Tabata training. Hence, the investigator seriously got interested to know whether there was any significant enhancement or not in the following variables:

**Table 1:** Selection of Tests

Variables	Test
Speed	50 Meters Dash
Speed Endurance	110 Meters Dash

#### 3.3 Experimental design

The experimental treatment allocated Tabata sprint training to the experimental group the experimental was used for this

study is pre-test and post-test random group design used in the present study. The selected subjects randomly assigned to experimental and control group of 15 each. Group-I had given an hour of Soccer training with Tabata training, and Group-II was control which had not received any unique pieces of exercise apart from the regular activities. The groups tested on selected criterion variables Speed and Speed endurance before and after the training programme.

**3.4 Treatment**

Throughout the training period, the experimental group underwent Tabata sprint training for three days per week (alternate days) for twelve weeks. The workout lasted to 60 minutes/session including dynamic warming up, soccer-specific training and warming down periods. Control group were instructed not to participate in any strenuous physical exercise and specialized training throughout the training programme.

**3.5 Training Program**

Participants completed three training sessions per week over a 12-week period (36 sessions). The training period was separated as four weeks of three different training methods Tabata sprint training short-term protocol, Tabata sprint training intermediate term protocol, and Tabata sprint training long-term protocol.

**Table 2**

Week 1-4 Short term/60 Min/Session	Week 4-8 Intermediate term/60 Min/Session	Week 8-12 Long term/60 Min/Session
Dynamic Warming up	Dynamic Warming up	Dynamic Warming up
Soccer Specific training	Soccer Specific training	Soccer Specific training
Tabata training Sprint- 20 sec x 7 x 1set Rest- 15 sec x 7 Total Duration: 4.05 Minutes	Tabata training Sprint- 20 sec x 6 x 2set Rest- 10 sec x 6/1 Min rest/set Total Duration: 08 Minutes	Tabata training Sprint- 20 sec x 6 Rep x 3set Rest- 10 sec x 6/1 Min rest/set Total Duration: 11 Minutes
Cooldown	Cooldown	Cooldown

**Table 3:** Analysis of Covariance on Speed of Tabata Sprint Training and Control Group

	Tabata Sprint Training Group	Control Group	Source of Variance	Sum of Square	Df	Mean Square	'F' ratio
Pre-test Mean	7.262	7.265	Between	0.000	1	0.000	0.044
S.D.	0.380	0.313	Within	0.034	28	0.001	
Post-test Mean	7.234	7.268	Between	0.009	1	0.009	6.907*
S.D.	0.362	0.346	Within	0.035	28	0.001	
Adjusted Post-test Mean	7.236	7.267	Between	0.007	1	0.007	34.65*
			Within	0.006	27	0.000	

\* Significant 0.05 level of confidence

(The table values required for significance at 0.05 level of confidence with df 1 and 28 and 1 and 27 were 4.20 and 4.21 respectively).

Table-3 showed that the pre-test mean values of speed for Tabata sprint training group and control group were 7.262 ± 0.380 and 7.265 ± 0.313 respectively. The obtained 'F' ratio value of 0.044 for pre-test scores of Tabata sprint training and control group on speed was less than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence.

**3.6 Test Administration and Measurements**

The selected variables in the present study were 50 meters dash and 110 meters dash to measure the speed and speed endurance. The test was administrated in the following way.

50 meters dash: The purpose of this analysis was to measure the speed of the subjects. Procedure: After a short warm-up period the subject takes a position behind the starting line. The starter used the command ready and clap, the subject run across the finish line, which will be drawn at 50 meters. From the starting line, as fast as possible. Scoring: The score is the elapsed time to the nearest tenth second between the starting signal, and the subject crosses the finish line.

110 meters dash: To measure the speed endurance. Procedure: It is advised that two subjects run at the same time. Both start from a standing position. The commands "are you ready" and "go" are given. At the command to go the starter drops his arm so that the timer at the finishing line can start the timing. The subject runs as fast as possible across the finishing line. Scoring: The elapsed time from the starting signal with until the runner crosses the finishing line is measured to the nearest tenth of a second.

**3.7 Statistical Procedure**

The pre-test and post-test random group design used in the present study. The data collected from groups before and after completion of the training period on selected criterion variables. The selected variables were statistically examined for significant differences if any, by applying the analysis of covariance (ANCOVA). To find the significance 0.05 level of confidence fixed.

**4. Results**

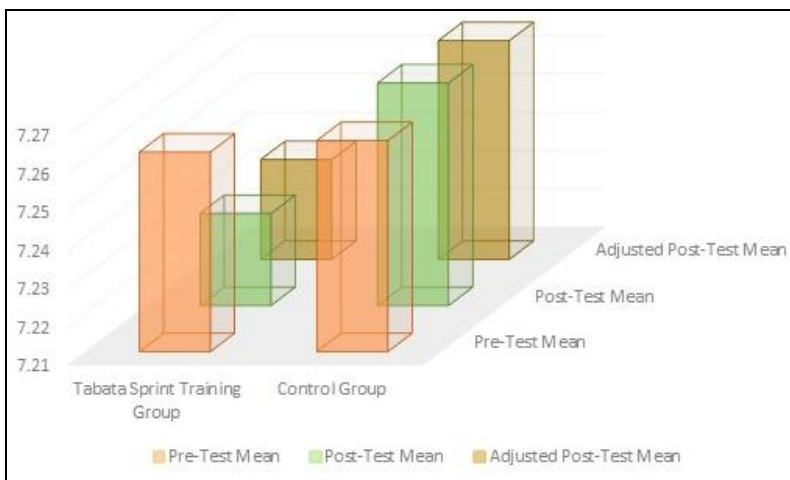
The subjects were tested on selected criterion variables such as speed and speed endurance at before and immediately after the training period. The analysis of covariance on speed and speed endurance of Tabata sprint training group and control group are analyzed and presented in given below tables respectively.

The post-test mean values for speed for Tabata sprint training and control group were 7.234 ± 0.362 and 7.268 ± 0.346 respectively. The obtained 'F' ratio value of 6.907 for post-test scores of Tabata sprint training and control group was higher than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level confidence.

The adjusted post-test mean values of speed for Tabata sprint training and control group were 7.236 and 7.267 respectively. The obtained 'F' ratio value of 34.65 for adjusted post-test scores of Tabata sprint training and control group was more

significant than the required table value of 4.21 for significance with df 1 and 27 at 0.05 level of confidence.

The mean values of Tabata sprint training and control group on speed were graphically represented in Figure-I.



**Fig 1:** Bar Diagram Showing the Mean Values of Tabata Sprint Training and Control Group on Speed

**Table 4:** Analysis of Covariance on Speed Endurance of Tabata Sprint Training and Control Group

	Tabata Sprint Training Group	Control Group	Source of Variance	Sum of Square	Df	Mean Square	'F' ratio
Pre-test Mean	18.47	18.42	Between	0.015	1	0.015	0.425
S.D.	0.170	0.208	Within	1.017	28	0.036	
Post-test Mean	18.24	18.60	Between	0.954	1	0.954	29.98*
S.D.	0.190	0.165	Within	0.891	28	0.032	
Adjusted Post-test Mean	18.23	18.60	Between	1.020	1	1.020	35.28*
			Within	0.781	27	0.029	

\* Significant 0.05 level of confidence

(The table values required for significance at 0.05 level of confidence with df 1 and 28 and 1 and 27 were 4.20 and 4.21 respectively).

Table-4 showed that the pre-test mean values of speed endurance for Tabata sprint training group and control group were  $18.47 \pm 0.170$  and  $18.42 \pm 0.208$  respectively. The obtained 'F' ratio value of 0.425 for pre-test scores of Tabata sprint training and control group on speed endurance was less than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence.

The post-test mean values for speed endurance for Tabata sprint training and control group were  $18.24 \pm 0.190$  and

$18.60 \pm 0.165$  respectively. The obtained 'F' ratio value of 29.98 for post-test scores of Tabata sprint training and control group was higher than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level confidence.

The adjusted post-test mean values of speed endurance for Tabata sprint training and control group were 18.23 and 18.60 respectively. The obtained 'F' ratio value of 35.28 for adjusted post-test scores of Tabata sprint training and control group was more significant than the required table value of 4.21 for significance with df 1 and 27 at 0.05 level of confidence.

The mean values of Tabata sprint training and control group on speed endurance were graphically represented in Figure-II.



**Fig 2:** Bar Diagram Showing the Mean Values of Tabata Sprint Training and Control Group on Speed Endurance

## 5. Conclusions

The results of the current study indicated that twelve weeks Tabata sprint training led to significant improvements in speed and speed endurance among footballers. Furthermore, Tabata sprint training evidenced more effective in increasing speed and speed endurance, the training method appears to endorse fitness. Based on the results of the study the investigator recommend that a similar research can be conducted for a different sport, age, and gender. It also suggests that same research can be performed with physiological and motor fitness components also.

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