



Effect of Tabata Training on Selected Bio-Motor Components among College Men Basketball Players

¹Mr. C. Prakash Raj and ² Mr.S.Arunkuar

¹Research Scholar, Department of Physical Education, Bharathiar University, Coimbatore-46.

² Research Scholar, Department of Physical Education, Bharathiar University, Coimbatore46.

ABSTRACT

The purpose of the study was designed to find out the effect of tabata training on selected bio-motor components among college men basketball players. To Carry out the study, thirty (N=30) men basketball players were selected as subjected from Bharathiar University, Coimbatore, Tamilnadu, India. Their ages ranged from 18 to 21 years. The selected subjects were divided into two equal groups, experimental group and control group (n=15 each). The experimental group underwent tabata training for three days per week over a period of six weeks. Meanwhile, the control group did not receive any training beyond their routine practice. Speed, strength and cardio respiratory endurance were assessed before and after the six-week treatment period. The data collected from the subjects were statistically analyzed using the 't' ratio. The results of the study indicated that the speed, strength and cardio respiratory endurance of the basketball players improved due to the six weeks of tabata training.

Keywords: Speed, Strength Cardio Respiratory Endurance and Basketball

Introduction

The training is a process of preparing an individual for any event or an activity or job. Usually in sports we use the term sports training which denotes the sense of preparing sportspersons for the highest level of performance. Sports training are the physical, technical, intellectual, psychological, emotional and moral preparation of an athlete or a player by means of physical exercises. Sports training also consists of all those learning influences and processes that are aimed at enhancing sports performance Harre (1986) said, "Sports training, based on scientific knowledge, and is a pedagogical process of sports perfection which through systematic effect on psycho-physical performance ability.

Purpose of the study

The purpose of the study was to find out the effect of six weeks of tabata training on speed, strength and cardio respiratory endurance of basket ball players.

Hypothesis

It was hypothesized that six weeks of tabata training would lead to remarkable improvements in the speed, strength and cardio respiratory endurance of basket ball players.

Methodology

In order to achieve the purpose of the study, thirty basket ball players were randomly selected as subjects from Bharathiar University, Coimbatore, Tamilnadu, India. Their ages ranged from 18 to 21 years. The selected participants were then randomly assigned to two groups: the experimental group, which received tabata training (n=15) and the control group (n=15). Before the start of the training experiment, all the subjects were tests on selected bio motor components and the readings were recorded as pre-test scores. After pre-test the experimental group participated in a tabata training program, which was designed to last 60 minutes per session, with three sessions held on alternative days (Monday, Wednesday, and Friday) over a period of six weeks. Every two weeks of training, the intensity of the load was increased by 5%, ranging from 55% to 80% of the workload. The volume of tabata training was prescribed based on the number of sets and repetitions. On the other hand, the control group did not receive any specialized training and continued with their routine activities. Following the six weeks of training, all the subjects were re-tested for speed (50m dash), strength (sit ups), cardio

respiratory endurance (9mins coopers test) and the readings were recorded as post-test scores. The collected pre and post-test scores were analyzed using the paired 't' test.

Statistical Technique

The collected pre and post test scores of experimental and control groups were analyzed with paired 't' test and the results were presented in the form of tables and figures.

Table – 1

Analysis of 't' ratio for the pre-test and post-tests of control and experimental group

Variable	Group	Mean		SD		Sd Error	df	't' ratio
		Pre	Post	Pre	Post			
Speed	Control	6.98	7.04	0.23	0.21	0.07	14	0.88
	Experimental	6.98	6.75	0.30	0.28	0.10		2.26*
Strength	Control	20.66	21.46	1.11	1.40	0.49		0.4
	Experimental	21.33	22.20	1.23	1.74	0.33		2.57*
Cardio Respiratory Endurance	Control	1940	1966	42.78	42.58	13.77		1.91
	Experimental	1950	2096	64.14	127.49	35.76		4.08*

*Significance at 0.05 level of confidence.

Table reveals the computation of mean, standard deviation and 't' ratio speed, agility and breath hold time of experimental and control group. The obtained 't' ratio on speed, strength and cardio respiratory endurance respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtained t values were greater than the table value were 2.26*, 2.57* and 4.08* respectively was found statistically insignificant.

Findings

Based on the analysis of the study it was found that six weeks of tabata training produced significant improvement on speed ($0.88 < 2.26$), strength ($0.40 < 2.57$) and cardio respiratory endurance ($1.91 < 4.08$) of basket ball players.

Fig - 1: Bar diagram shows the mean values of pre-test and post-tests of control and experimental group on speed

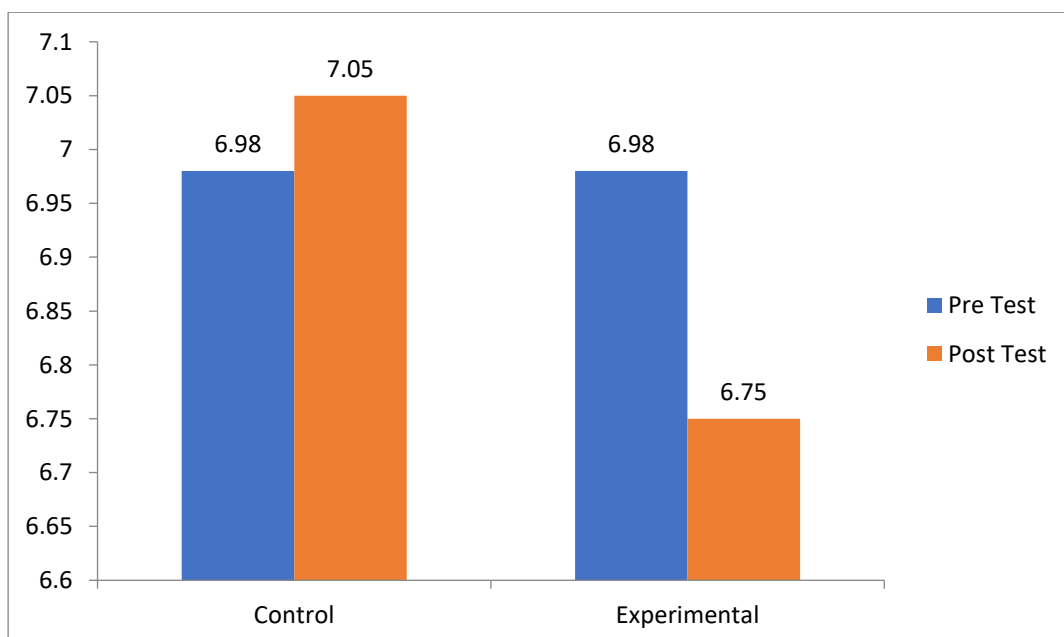
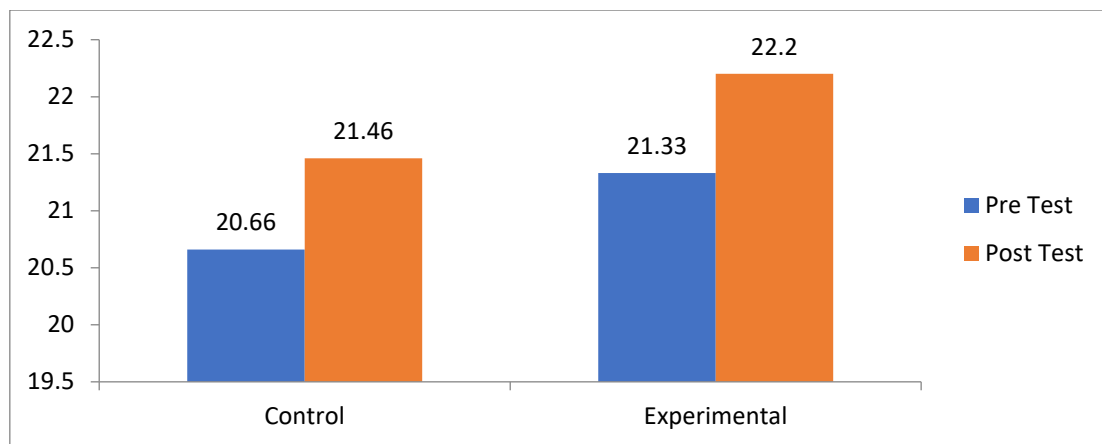
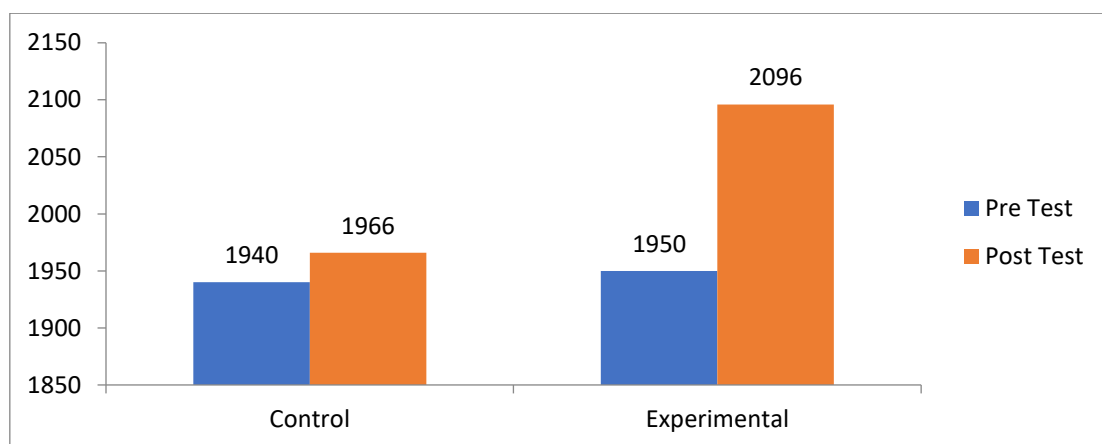


Fig - 2: Bar diagram shows the mean values of pre-test and post-test of control and experimental group on strength**Fig - 3: Bar diagram shows the mean values of pre-test and post-test of control and experimental group on cardio respiratory endurance**

Discussion on Findings

The present study experimented with the effect of tabata training on the speed, strength and cardio respiratory endurance of basket ball players. The results of this study indicated that tabata training was more efficient in bringing about desirable changes in speed, strength and cardio respiratory endurance of basket ball players. Investigators have extended their interest to consider the commencement of speed, strength and cardio respiratory endurance of basketball players in relation to tabata training.

Conclusions

Based on the findings of this study, it was concluded that a systematic and scientifically designed six-week tabata training program produced remarkable improvements in the speed, strength and cardio respiratory endurance of basket ball players aged eighteen to twenty one years. Additionally, it was determined that tabata training is an appropriate method to develop the speed, strength and cardio respiratory endurance of basket ball players.

Bibliography

Tabata, I. (2019). Tabata training: one of the most energetically effective high-intensity intermittent training methods. *The Journal of Physiological Sciences*, 69(4), 559-572.

Imanudin, I., & Sultoni, K. (2017, March). Tabata training for increasing aerobic capacity. In *IOP Conference Series: Materials Science and Engineering* (Vol. 180, No. 1, p. 012205). IOP Publishing.

Kusuma, I. D. M. A. W. (2019). The influence of the differences within the preliminary vo2max level on the Tabata training results. *Jurnal SPORTIF: Jurnal Penelitian Pembelajaran*, 5(2), 327-341.

Domaradzki, J., Cichy, I., Rokita, A., & Popowczak, M. (2020). Effects of tabata training during physical education classes on body composition, aerobic capacity, and anaerobic performance of under-, normal-and overweight adolescents. *International Journal of Environmental Research and Public Health*, 17(3), 876.

- Popowczak, M., Rokita, A., & Domaradzki, J. (2022). Effects of Tabata training on health-related fitness components among secondary school students. *Kinesiology*, 54(2), 221-229.
- Afyon, Y. A., Mulazimoglu, O., Celikbilek, S., Dalbudak, I., & Kalafat, C. (2021). The effect of Tabata training program on physical and motoric characteristics of soccer players. *Progress In Nutrition*, 23(2).
- Munandar, R. A., Setijono, H., & Kusnanik, N. W. (2021). The Effect of Tabata Training and High Intensity Interval Training toward The Increasing of Strength, and Speed. *International Journal of Multicultural and Multireligious Understanding*, 8(10), 80-85.
- Setiawan, E., Iwandana, D. T., Festiawan, R., & Bapista, C. (2020). Improving handball athletes' physical fitness components through Tabata training during the outbreak of COVID-19. *Jurnal SPORTIF: Jurnal Penelitian Pembelajaran*, 6(2), 375-389.
- Ekström, A., Östenberg, A. H., Björklund, G., & Alricsson, M. (2017). The effects of introducing Tabata interval training and stability exercises to school children as a school-based intervention program. *International journal of adolescent medicine and health*, 31(4), 20170043.
- Harré, R. (1986). Mind as a social formation. In *Rationality, relativism and the human sciences* (pp. 91-106). Dordrecht: Springer Netherlands.
- Lee, K. J., Noh, B., & An, K. O. (2021). Impact of synchronous online physical education classes using Tabata training on adolescents during COVID-19: a randomized controlled study. *International Journal of Environmental Research and Public Health*, 18(19), 10305.