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## **Influence of Varied Training Capsules on Selected Physiological Variables among College Level Women Kabaddi Players**

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### **ABSTRACT**

**Background:** Kabaddi is a fast-paced sport that demands a combination of physiological endurance and strategic skills. The efficiency of different training regimens can play a crucial role in enhancing athletes' physiological and physiological attributes.

**Objective:** This study investigates how different training methods impact selected physiological variables among college-level women Kabaddi players.

**Methods:** Sixty college-level women Kabaddi players were randomly assigned to three different training groups: (1) Tabata training, (2) Resistance training, and (3) a combined regimen focusing on both endurance and VO2 Max. The training was conducted over 8 weeks. Physiological variables, such as VO2 Max, were assessed before and after the training period.

**Results:** All training groups demonstrated significant improvements in physiological variables. The combined training regimen yielded the most notable improvements, particularly in VO2 Max.

**Conclusion:** Various training regimens positively affect the physiological variables of college-level women Kabaddi players, with the combined training approach being the most effective in enhancing overall athletic performance, especially in VO2 Max. This suggests that a well-rounded training strategy could be optimal for improving performance in Kabaddi.

**Keywords:** Kabaddi, physiological variables, VO2 Max training regimens, women kabaddi players.

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### **INTRODUCTION**

Sport has become a prominent feature of twentieth-century life, illustrating its widespread appeal and integration into diverse cultures around the globe. This phenomenon has not only captivated the public's interest but also sparked a growing body of research across various disciplines, calling for historians to provide a deeper historical perspective on the evolution and impact of sports. As a reflection of societal characteristics, sports can be seen as a microcosm of society itself (Coakley, 1988). Sports embody physiological processes, playfulness, competition, skill, and strategic elements (Wilkeson & Doilies, 1979).

Kabaddi, a traditional sport originating from India, combines elements of tag and wrestling. It has evolved into a popular game in South Asia, particularly in India, Bangladesh, and Pakistan. Kabaddi is not merely a sport but a significant cultural phenomenon that fosters teamwork, physiological fitness, and regional pride. Its deep roots in rural traditions have contributed to its celebration on both national and international stages.

### **SPORTS TRAINING**

Sports training, or coaching, is a structured process aimed at enhancing and maintaining athletes' performance through scientific and pedagogical principles. Effective coaching involves coordinating various factors such as time, sequence, action, movement, VO2 Max, education, mental capabilities, tactical efficiency, and motor skills to achieve peak performance in competitions (Matveyev, 1982). The primary goal of sports training is to prepare athletes for optimal performance in their respective sports.

## TABATA TRAINING METHOD

Tabata training is a form of high-intensity interval training (HIIT) characterized by its brief but intense exercise intervals. A standard Tabata workout consists of 8 rounds of 20 seconds of maximum-effort exercise followed by 10 seconds of rest, totaling four minutes. This method is known for its effectiveness in improving cardiovascular and muscular fitness within a short time frame.

## PHYSIOLOGICAL EFFECTS OF TABATA TRAINING

Tabata training, a specific type of HIIT, involves short bursts of intense exercise followed by brief rest periods. Although individual responses can vary, Tabata training is associated with improvements in several physiological parameters, including cardiovascular fitness, muscular strength, and endurance.

## METHODOLOGY

This study investigates the impact of different training methods on physiological variables among college-level women Kabaddi players. Sixty female Kabaddi players from various schools in Tirupur district, Tamil Nadu, aged 18 to 25, were randomly assigned to four groups: Experimental Group I (Tabata training), Experimental Group II (Resistance training), Experimental Group III (Combined training), and a Control Group. A meeting was held to explain the study's objectives and ensure participants understood the requirements. The training interventions lasted eight weeks for the Experimental Groups, while the Control Group did not receive any specific training. Pre- and post-intervention assessments were conducted to measure selected physiological variables, such as VO<sub>2</sub> Max, providing a comprehensive evaluation of the effects of the different training methods.

## TRAINING PROCEDURE

Experimental Group I participated in tabatta training, Experimental Group II underwent resistance training, Experimental Group III (combined training), and the control group did not undergo any specific training program. Both experimental treatments, namely tabatta training and resistance training, combined training were administered over a period of eight weeks. The training sessions occurred three times a week on alternate days, with each session lasting for 60 minutes.

## STATISTICAL TECHNIQUE

The data collected from both groups before and after the experimental treatments, focusing on selected variables such as VO<sub>2</sub> Max underwent statistical analysis utilizing the technique of Analysis of Covariance (ANCOVA). In cases where the 'F' ratio for adjusted post-test means showed significance, Scheffe's post hoc test was employed to ascertain the significance of differences among paired means. A confidence level of 0.05 was established for all analyses to test the hypotheses.

## RESULTS AND ANALYSIS

The examination of the impact of independent variables on each criterion variable is detailed below. The study's duration was confined to eight weeks, focusing on health-related variables of VO<sub>2</sub> Max as the chosen dependent variables. Prior to and immediately after the experimental period, all subjects underwent testing on these selected dependent variables. The data collected from the experimental groups before and after the intervention were subjected to statistical organization utilizing the dependent 't'-test and Analysis of Covariance (ANCOVA). In instances where the 'F' ratio for adjusted post-test means demonstrated notable performance distinctions, the Scheffe's Post hoc test was conducted to identify significant differences among paired means. A confidence level of 0.05 was established for all analyses.

TABLE – 1

### ANALYSIS OF COVARIANCE AMONG TABATA TRAINING GROUP, PLYOMETRIC TRAINING GROUP, CIRCUIT TRAINING GROUP AND CONTROL GROUP ON VO<sub>2</sub> MAX

	Tabata Training Group	Plyometric Training Group	Circuit Training Group	Control Group	Source of Variance	Sum of square	Degrees of freedom	Mean square	F - value
<b>Pre test mean</b>	42.76	42.85	42.84	42.81	Between	0.088	3	0.029	0.04
					Within	41.303	56	0.738	
<b>Post test mean</b>	46.04	45.88	45.86	42.82	Between	108.813	3	36.271	62.86*
					Within	32.31	56	0.577	

<b>Adjusted post mean</b>	46.06	45.87	45.87	42.81	Between	109.88	3	36.629	74.89*
					Within	26.899	55	0.489	

\*Significant at 0.05 level of confidence

Required table value at 0.05 level of significant with degrees of freedom 3 and 56 is 2.77 and degrees of freedom 3 and 55 is 2.77.

Table -1 shows the obtained 'F' values on pre test, post test and adjusted post test means on VO<sub>2</sub> Max of tabata training group, plyometric training group, circuit training group and control group.

The pre test means on VO<sub>2</sub> Max were 42.76, 42.85, 42.84 and 42.81 respectively. The 'F' value observed for the pre test on VO<sub>2</sub> Max was 0.04. It fails to reach the table value of 2.77 for degrees of freedom 3 and 56 at 0.05 level of confidence. Based on the results it was confirmed that the mean differences among the groups of tabata training group, plyometric training group, circuit training group and control group on VO<sub>2</sub> Max before the start of the respective treatments were found to be insignificant.

The post test means on VO<sub>2</sub> Max of tabata training group, plyometric training group, circuit training group and control group were 46.04, 45.88, 45.86 and 42.82 respectively. The 'F' value observed for the post test on VO<sub>2</sub> Max was 62.86. It was greater than the table value of 2.77 for degrees of freedom 3 and 56 at 0.05 level of confidence. Thus, the results obtained proved that the training on VO<sub>2</sub> Max produced significant improvement among the experimental groups.

The adjusted post test means on VO<sub>2</sub> Max test of tabata training group, plyometric training group, circuit training group and control group were 46.06, 45.87, 45.87 and 42.81 respectively. The 'F' value observed for the adjusted post test means on VO<sub>2</sub> Max was 74.89. It was greater than the table value of 2.77 for degrees of freedom 3 and 55 at 0.05 level of confidence.

The observed F- value on adjusted post test means among the groups on VO<sub>2</sub> Max was highly significant as the value was higher than required table value of 2.77. Thus the results obtained proved that the training on VO<sub>2</sub> Max test produced significant improvements among the experimental groups.

Since significant differences were recorded, the scores were further subjected to statistical treatment using Scheffe's post hoc test and the results were presented in the Table -2.

**TABLE -26**

**THE SCHEFEE'S POST HOC TEST ON VO<sub>2</sub> MAX**

Tabata Training Group	Plyometric Group	Training	Circuit Training Group	Control Group	M.D	C.I
46.06	45.87				0.19	0.73
46.06			45.87		0.19	
46.06				42.81	3.25*	
	45.87		45.87		0	
	45.87			42.81	3.06*	
			45.87	42.81	3.06*	

\* Significant at 0.05 level of confidence.

Table -26 revealed that the mean differences between the paired adjusted post test means of all groups.

The mean difference between tabata training group and control group and between plyometric training group and control group and between circuit training and control group were 3.25, 3.06 and 3.06 respectively. The values of mean difference of adjusted post test means were higher than the required confidence interval value of 0.73 and it was found to be significant at 0.05 level of confidence.

Thus, the mean differences of paired adjusted post test mean between tabata training group and plyometric training and between tabata training group and circuit training group and between plyometric training group and circuit training group were 0.19, 0.19 and 0.00 lesser than the required confidence interval value of 0.73 it was found to be insignificant at 0.5 level of confidence.

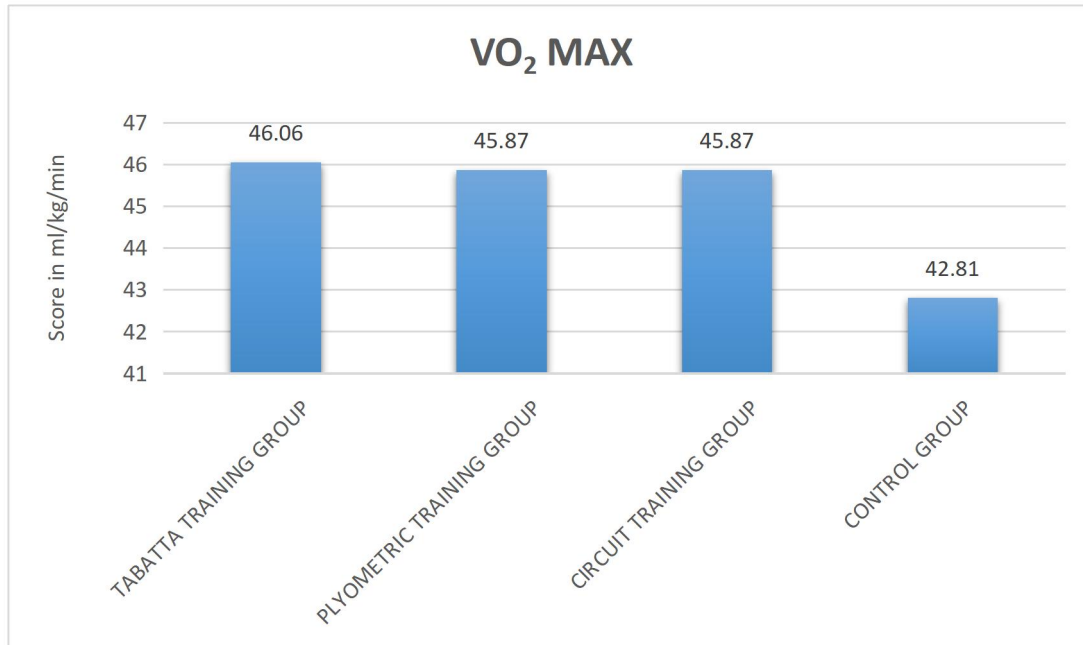
From these results it was inferred that tabata training group produced significant improvement on VO<sub>2</sub> Max better than the other training groups of plyometric training group, circuit training group and control group.

Further, twelve weeks of tabata training group significantly improved VO<sub>2</sub> Max when plyometric training group, circuit training group and control group.

The adjusted post test mean values of experimental group and control group on VO<sub>2</sub> Max were given in graphical representation in Figure – 15.

FIGURE – 1

BAR DIAGRAM SHOWING THE ADJUSTED POST TEST MEAN VALUES OF TABATA TRAINING GROUP, PLYOMETRIC TRAINING GROUP, CIRCUIT TRAINING GROUP AND CONTROL GROUP ON VO<sub>2</sub> MAX



## CONCLUSION

The findings of the study showed that there was a statistically significant improvement in the physiological fitness variable of VO<sub>2</sub> Max as compared to control group.

1. The results of the study shows that the experimental group-I that had undergone tabatta training group, improved physiological fitness variables in VO<sub>2</sub> Max of kabaddi women players.
2. The results of the study shows that the experimental group-I that had undergone tabatta training group better than resistance training group improved by physiological fitness variables in VO<sub>2</sub> Max of kabaddi players.

## RECOMMENDATIONS

It is recommended that coaches and physiological educators in the game of kabaddi should give due to include tabatta training in their training schedules.

In the physiological exercise, while designing the training programme the effect of varied training modalities is explained on positively on physiological fitness variables of kabaddi players, the physiological education teachers and coaches can prefer this type of training so as to achieve aim in time.

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