EFFECT OF YOGIC TRAINING ON INSPIRATORY AND EXPIRATORY RESERVE VOLUME AMONG PREADOLESCENT BOYS

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Abstract

The purpose of the study was to find out the effect of yogic training on inspiratory reserve volume and expiratory reserve volume among preadolescent boys. To achieve the purpose of this study, 30 preadolescent boys were randomly selected as subjects from Thoothukudi District, Tamilnadu, India. Their age were ranged from 12 to 14 years. The selected participants were randomly divided into two groups such as group 'I' underwent yogic training (n=15) and group 'II' acted as control group (n-15). Group 'I' underwent yogic training for six days in a week and one session per day and each session lasted for 45 minutes for six week. Group 'II' was not exposed to any specific training but they were participated in regular activities. The data on inspiratory and expiratory reserve volume were collected by administering with Wet Spiro meter. The pre and post tests data were collected on selected criterion variables prior to and immediately after the training programme. The pre and post-test scores were statistically examined by the dependent 't' test and Analysis of Co-Variance (ANCOVA) for each and every selected variable separately. It was concluded that the yogic training group had shown significantly improved in inspiratory and expiratory reserve volume. However the control group had not shown any significant improvement on any of the selected variables such as inspiratory and expiratory reserve volume.

Key Words: Yoga Training, Inspiratory Reserve Volume, Expiratory Reserve Volume

I. INTRODUCTION

Yoga has been reported to improve the strength, endurance, vo2 peak, which are the components of the physical fitness [1]. Most of the studies are conducted on the adolescents and adults, non randomized trials, and space studies on underprivileged prepubertal age group [2]

Yoga is the art and science of living and is concerned with the evolution of mind and body. Therefore, yoga incorporates a system of disciplines for furthering an integrated development of all aspects of the individual [3]. When we start the disciplines of yoga we usually begin with the outermost aspect of the physical personality, the physical body. Through the practice of the physical postures, or yoganas, the spinal column as well as the muscles and joints are maintained in a healthy and supple state [4].

Yoga is a form of complete education that can be used with all students because it develops physiological variables and intellectual and creative talents. In this study a sincere effort has been made to investigate the effects of yogasana and pranayama on physiological variables of secondary school boys [5].

Thus various internal organs such as intestine, heart, blood vessels, lungs, bronchioles may also be affected. All these changes may lead to the change in attitude and behavior of the student. According to guidelines of the central board of secondary education childhood and albescence from the most joyful period an individual's life [6].

Kumar K., (2012) Introducing the children to yoga at an early age can help them learn healthy lifestyle habits and set the foundation for a fit future. Here are kid-friendly yoga poses to get your family practice started [7].

The peak expiratory flow rate measures how fast a person can breathe out (exhale) air. The number of movements indicative of inspiration and expiration per unit time is respiratory rate. Exercise increases the number, while rest diminishes it. The lower the resting respiratory rate, healthier the person [8]

Yoga science of breathing is called pranayama. Oxygen is the most vial nutrient to our body. It is essential for the integrity of the brain, nerves, glands and internal organs. It is a systematic exercise of respiration, which makes the lungs stronger, improves blood circulation makes the man healthier and bestows upon him the boon of a long life. It aids the respiratory system function at its best whereby the life force can be activated and regulated in order to go beyond one normal boundaries or limitations and attain a higher state of vibratory energy [9].

II. PURPOSE OF THE STUDY

The purpose of the study was to find out the effect of yogic training on inspiratory reserve volume and expiratory reserve volume among preadolescent boys

III. METHODOLOGY

To achieve the purpose of this study, 30 preadolescent boys were randomly selected as subjects from Thoothukudi District, Tamilnadu, India. Their age ranged from 12 to 14 years. The selected participants were randomly divided into two groups such as group 'I' underwent yogic training (n=15) and group 'II' acted as control group (n-15). Group 'I' underwent yogic training for six days in a week and one session per day and each session lasted for 45 minutes for six week. Group 'II' was not exposed to any specific training but they were participated in regular activities. The data on inspiratory and expiratory reserve volume were collected by administering with Wet Spiro meter. The pre and post tests data were collected on selected criterion variables prior to and immediately after the training programme. The pre and post-test scores were statistically examined by the dependent 't' test and Analysis of Co-Variance (ANCOVA) for each and every selected variable separately.

VI. ANALYSIS OF THE DATA

The effect of yogic training on inspiratory reserve volume were analyzed and presented below.

4.1 Inspiratory Reserve Volume

Table 4.1

Means and dependent't'-test for the pre and post tests on inspiratory reserve volume experimental and control groups (in mm^3)

Criterion variables	Mean	Experimental Group	Control Group
Inspiratory Reserve Volume	Pre test	1.89	1.86
	Post test	2.05	1.93
	't'test	**18.21**	**0.67**

*****Significant at .05 level. (Table value required for significance at .05 level for 't'-test with df 14 is 2.145)

The table 4.1 shows that the pre-test mean value of experimental group and control group on inspiratory reserve volume are 1.89 and 1.86 respectively and the posttest means are 2.05 and 1.93 respectively. The obtained dependent t-ratio values between the pre-and posttest means of yogic training and control group are 18.21 and 0.67 respectively. The table value required for significant difference with df 14 at 0.05 level is 2.145. From the above table the dependent 't'-test values of inspiratory reserve volume between the pre and post tests means of experimental groups were greater than the table value 2.145 with df 14 at 0.05 level of confidence, it is concluded that experimental group had significant improvement in the inspiratory reserve volume compared to control group.

4.2 Computation of Analysis of Covariance

The descriptive measures and the results of analysis of covariance on the criterion measures were given in the following tables.

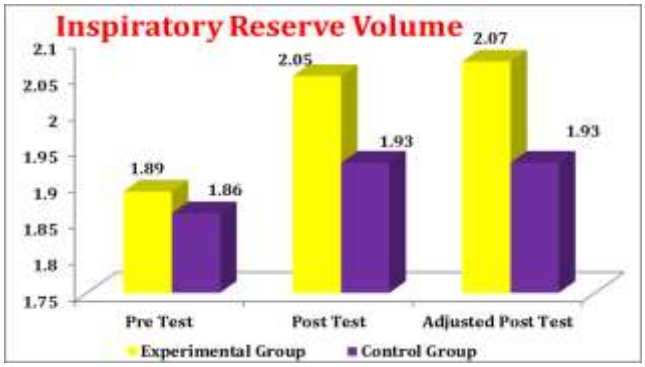
Table 4.2

Computation of mean and analysis of covariance on inspiratory reserve volume of experimental and control groups

	Experimental Group	Control Group	Source of Variance	Sum of Squares	df	Mean Square	F
Inspiratory Reserve Volume	2.07	1.93	BG	5.25	1	5.25	**40.38***
			WG	2.21	27	0.08	

* Significant at 0.05 level. Table value for df 1, 27 was 4.21

Table 4.2 shows that the adjusted post test means values on inspiratory reserve volume of experimental and control groups 2.07 and 1.93 respectively. The obtained f- ratio of 40.38 for adjusted post test mean is greater than the table value 4.21 with df 1 and 27 required for significance at 0.05 level of confidence. The results of the study indicates that there was a significant mean difference exist between the adjusted post test means of yogic training and control groups on inspiratory reserve volume. The bar diagram shows the mean values of pretest, post test and adjusted post test on inspiratory reserve volume of yogic training and control group.



4.3 Expiratory Reserve Volume

Table 4.3
Means and dependent't'-test for the pre and post tests on expiratory reserve volume experimental and control groups (in mm^3)

Criterion variables	Mean	Experimental Group	Control Group
Expiratory Reserve Volume	Pre test	0.65	0.61
	Post test	0.81	0.67
	't'test	**9.43**	**1.09**

*****Significant at .05 level. (Table value required for significance at .05 level for 't'-test with df 14 is 2.145)

The table 4.3 shows that the pre-test mean value of experimental group and control group on expiratory reserve volume are 0.65 and 0.61 respectively and the posttest means are 0.81 and 0.67 respectively. The obtained dependent t-ratio values between the pre-and posttest means of yogic training and control group are 9.43 and 1.09 respectively. The table value required for significant difference with df 14 at 0.05 level is 2.145 From the above table the dependent 't'-test values of expiratory reserve volume between the pre and post tests means of experimental groups were greater than the table value 2.145 with df 14 at 0.05 level of confidence, it is concluded that experimental group had significant improvement in the expiratory reserve volume compared to control group.

4.2 Computation of Analysis of Covariance

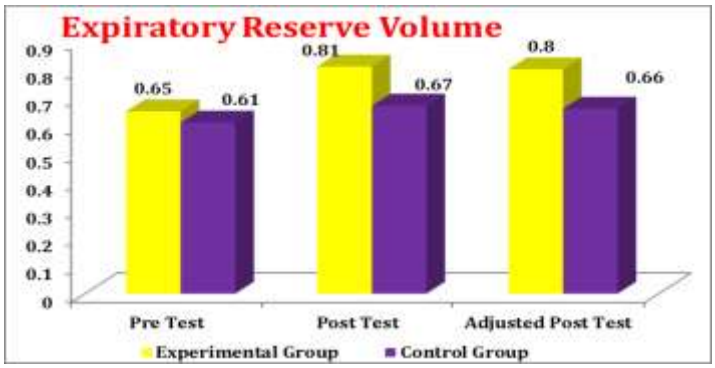
The descriptive measures and the results of analysis of covariance on the criterion measures were given in the following tables.

Table 4.4
Computation of mean and analysis of covariance on expiratory reserve volume of experimental and control groups

	Experimental Group	Control Group	Source of Variance	Sum of Squares	df	Mean Square	F
Expiratory Reserve Volume	0.80	0.66	BG	1.01	1	1.01	**20.2***
			WG	0.81	17	0.05	

* Significant at 0.05 level. Table value for df 1, 27 was 4.21

Table 4.4 shows that the adjusted post test means values on expiratory reserve volume of experimental and control groups 0.80 and 0.66 respectively. The obtained f- ratio of 20.2 for adjusted post test mean is greater than the table value 4.21 with df 1 and 27 required for significance at 0.05 level of confidence. The results of the study indicates that there was a significant mean difference exist between the adjusted post test means of yogic training and control groups on expiratory reserve volume. The bar diagram shows the mean values of pretest, post test and adjusted post test on expiratory reserve volume of yogic training and control group.



V. DISCUSSION ON FINDINGS

The result of the study indicates that there was a significant improvement on inspiratory reserve volume and expiratory reserve volume due to the effect of yogic training among preadolescent boys. Raju, P. S., Prasad, K. V. V., Venkata, R. Y., Murthy, K. J. R., & Reddy, M. V. (1997) contacted a study on Influence of intensive yoga training on physiological changes in 6 adult women: a case report. The implications for the effect of intensive yoga on cardiorespiratory efficiency are discussed, with the suggestion that yoga has some transparently different quantifiable physiological effects to other exercises. Bhavanani, A. B. (2003) contacted a study on effect of yoga training on handgrip, respiratory pressures and pulmonary function. It is suggested that yoga be introduced at school level in order to improve physiological functions, overall health and performance of students. Anuja, P. & Arumugam, S. (July, 2018) examined the study on effect of yogic practices on peak flow rate and resting pulse rate among school students. They concluded his study effect of yogic practices improved on peak floe rate and resting pulse rate among school students

VI. CONCLUSIONS

- It was concluded that the yogic training group had shown significantly improved inspiratory reserve volume.
- It was concluded that the yogic training group had shown significantly improved expiratory reserve volume.
- However the control group had not shown any significant improvement on any of the selected variable such as inspiratory reserve volume and expiratory reserve volume.

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