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PEAK EXPIRATORY FLOW RATE EFFECTS OF MEDITATION AND PRANAYAMA ON FORCED EXPIRATORY VOLUME OF WOMEN STUDENTS

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Abstract: The objective of the study was **Impacts of Yogic Practices Program on** Forced expiratory volume **of Female students .** The 45 female students selected for the present study were divided into three equal groups called, Experimental group I (Meditation Group), experimental II (Pranayama group) and Control group, consisting of 15 Female students in each group. They were the students of graduate Course and their age ranged from 18 to 25 years during the academic year 2016-17. The entire sample were directed to assemble in a multipurpose hall Padmpani College of Physical education to seek their willingness, to act as subjects. Pranayama and meditation programme was planned for 12 weeks, 5 days a week and 60 minutes a day. The investigator explained to them the purpose, nature, importance of the experiment and the procedure to be employed to collect their information. Further the role of the subjects during the experimentation and the testing procedure were also explained to them in detail. The result of the study reveals that there were significant difference were found in post-test Forced expiratory volume among Meditation, Pranayama and Control group **.** That means Pranayama was more effective to increase Forced expiratory volume as compare to their counterparts.

Keywords: Meditation, Pranayama and Control group, experimental group

I. INTRODUCTION

Forced expiratory volume is a assess of how much amount of air a person can exhale with maximum effort within a given period of time. This is a lung function test that is part of spirometry, which measures a person's ability to inhale and exhale air over time. Forced expiratory volume is usually expressed as a percentage of vital capacity (VC), which is the volume change between full inspiration and full expiration. Pranayama prolongs the inhalation and exhalation, providing further support to the respiratory muscles. Regular practice of yoga Improving posture by strengthening the spinal muscles and Increase range of motion in the chest and spine with regular stretches. Yoga practice includes proper breathing, proper diet and positive thinking and meditation. Yoga breathing involves very slow, deep breathing with continuous breath holding after each inspiration. The regular practice of yoga contributes to the improvement of gas exchange and forced expiratory volume of the lung. Pranayama is a very effective method to keep the lungs healthy and improve breathing ability. While regularly practicing deep breathing is great for improvement of physiological efficiencies and internal working capacity. Regular practice of Pranayama maintains the internal functioning efficiently. Pranayam helps to improve posture and trains the muscles that help in breathing correctly. Pranayama helps in expelling stale air from the lungs and increasing breathing efficiency. Pranayama is the art of lengthening and controlling the breath which helps to bring conscious awareness to breathing and reshape breathing habits and patterns. Meditation is a yogic process of calming the mind to its original state and providing deep relaxation to the system.

II. METHODS

Sample Size and Sample Frame

Three groups were targeted viz.Meditation group, Pranayama Group and control . Forty five college girls selected for the study . Training was given to Meditation group, Pranayama Group separately; the data was collected through respondents in the form of different descriptive tests.

Demographic Information :

The demographic information about, age, height, weight etc. was obtained before seeking training. Purposive sampling method was used, as the researcher selected young girls with a specific purpose.

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Experimental Group and site of Research

The subjects selected for the present study were divided into three equal groups called, Experimental group I (Meditation Group), experimental II (Pranayama group) and Control group, consisting of 15 Female students in each group. They were the students of graduate Course and their age ranged from 18 to 25 years during the academic year 2016-17.

The entire sample were directed to assemble in a multipurpose hall Padmpani College of Physical education to seek their willingness, to act as subjects.

Pranayama and meditation programme

The yogic Pranayama includes Kapalbhati ,Anulom Vilom and Bhastrika .Yogic Pranayama the demonstration was given to the subjects . Pranayama and meditation programme was planned for 12 weeks, 5 days a week and 60 minutes a day.

Meditation programme was prepared by the investigator on consultation with experts. It consists of meaning, types, uses and techniques of meditation including **Basic** (Agna, Moolathara and Thuria) and **Nine Centres Meditation** (Moolathara, Swathitana, Maniporaga, Anagatha, Vishukthi, Agna , Thuria, Thurithedha and Thuvathasangam). They were explained through video presentation which was of 20 minutes in duration in local language . Then it was enacted by the subjects under the supervision of the investigator. The result computed also crosschecked by using following statistical variables. Mean, standard deviation, ANOVA and LSD post hoc test.

III. RESULTS OF THE STUDY

The results concerning this are presented in the form of tables and also illustrated with the help of suitable figures where ever necessary. For the sake of F-ratio, LSD means and standard deviation used for find out the results, following order has been adopted.

TABLE -1
PRE-TEST MEAN SCORES AND STANDARD DEVIATION OF FORCED EXPIRATORY VOLUME AMONG MEDITATION GROUP PRANAYAMA GROUP AND CONTROL GROUP

COMPONENTS	GROUP	SAMPLE SIZE	MEAN	S.DS
Forced expiratory volume.	Meditation group	15	2.80	0.20
	Pranayama group	15	2.70	0.22
	Control group	15	2.63	0.19

Table 34 shows that the Pre-Test mean scores, standard deviation of Meditation, Pranayama and Control with respect to Forced expiratory volume.

With regards to Pre-Test mean score of Forced expiratory volume of Meditation group was obtained 3.12, The Pre-Test mean score of Forced expiratory volume of Pranayama group was 4.07 and Pre-Test mean score of Forced expiratory volume of Control group was 2.82 respectively.

However, the standard deviation of Pre-Test Forced expiratory volume of meditation group was obtained 0.45, Pre-Test Forced expiratory volume of Pranayama group was obtained 0.31and standard deviation of Pre-Test Forced expiratory volume of control group was obtained 0.24 respectively, Pre-Test mean scores, standard deviation of Meditation, Pranayama and Control group with respect to Forced expiratory volume are presented graphically in figure-23

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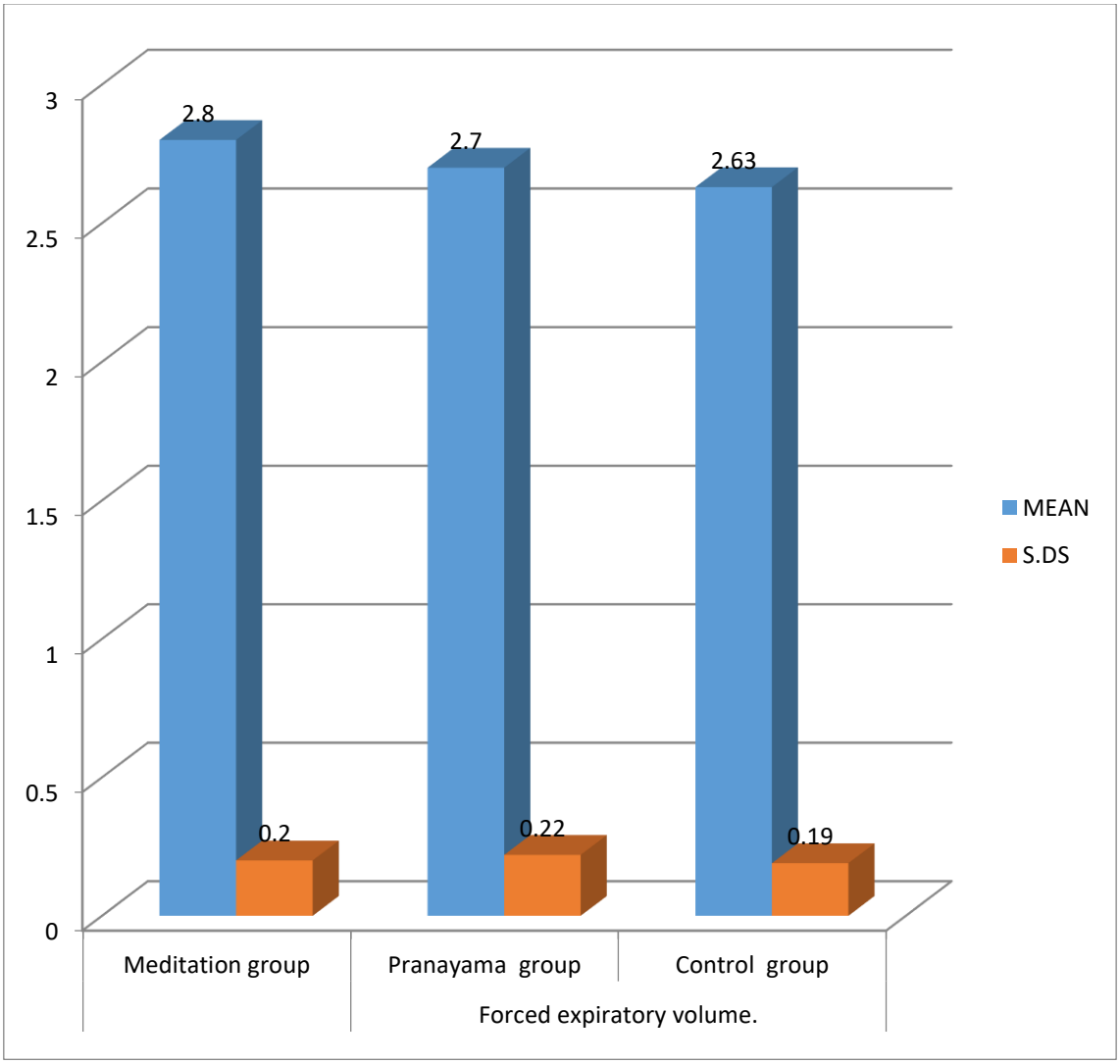
FIGURE – 1
SHOWS THAT THE PRE TEST MEAN SCORES, STANDARD DEVIATION OF MEDITATION, PRANAYAMA AND CONTROL GROUPWITH RESPECT TO FORCED EXPIRATORY VOLUME .



In order to find out the significant difference of pre-test Forced expiratory volume among Meditation, Pranayama and Control group, one way analysis of variance was used to compare the Forced expiratory volume of pre-test .

The results of one way Analysis of variance of pre-test Forced expiratory volume among three group of sample is presented in Table 2

TABLE – 2
ONE WAY ANALYSIS OF VARIANCE SHOWS THE COMPARISON OF PRE-TEST FORCED EXPIRATORY VOLUME AMONG MEDITATION, PRANAYAMA AND CONTROL GROUP

Sr. No.	Components	Source of Variance	DF	SS	MSS	F-ratio
1.	Forced expiratory volume	Between group	2	3.07	1.53	1.57 NS
		Within group	42	40.78	.97	

Table-2 shows the statistical comparison of pre-test Forced expiratory volume among Meditation, Pranayama and Control group.

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The result of the study reveals that there were no significant difference were found in pre-test Forced expiratory volume (F= 1.57) among Meditation, Pranayama and Control group .
Post -test mean scores and standard deviation of post-test Forced expiratory volume among meditation group ,pranayama group and control group has been presented in table-3

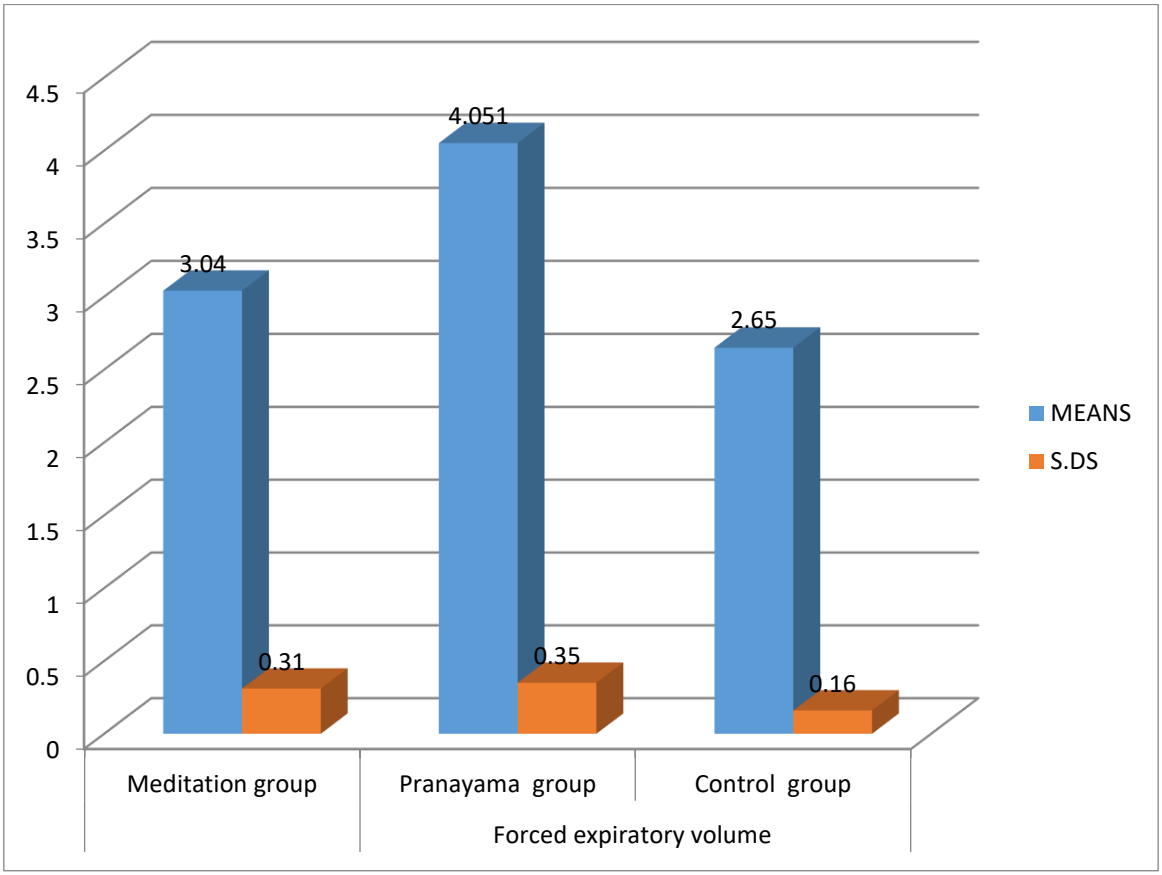
TABLE 3
POST-TEST MEAN SCORES AND STANDARD DEVIATION OF FORCED EXPIRATORY VOLUME AMONG MEDITATION GROUP PRANAYAMA GROUP AND CONTROL GROUP

COMPONENTS	GROUP	SAMPLE SIZE	MEANS	S.DS
Forced expiratory volume	Meditation group	15	3.04	0.31
	Pranayama group	15	4.051	0.35
	Control group	15	2.65	0.16

Table 3 shows that the Post-Test mean scores, standard deviation of Meditation, Pranayama and Control with respect to Forced expiratory volume.

With regards to Post-Test mean score of Forced expiratory volume of Meditation group was obtained 3.04, The Post-Test mean score of Forced expiratory volume of Pranayama group was 4.051 and Post-Test mean score of Forced expiratory volume of Control group was 2.65 respectively. However the standard deviation of Post-Test Forced expiratory volume of meditation group was obtained 0.31, Post-Test Forced expiratory volume of Pranayama group was obtained 0.35 and standard deviation of Post-Test Forced expiratory volume of control group was obtained 0.16 respectively, Post-Test mean scores, standard deviation of Meditation, Pranayama and Control group with respect to Forced expiratory volume are presented graphically in figure-2

FIGURE – 2
SHOWS THAT THE PRE TEST MEAN SCORES, STANDARD DEVIATION OF MEDITATION, PRANAYAMA AND CONTROL GROUPWITH RESPECT TO FORCED EXPIRATORY VOLUME.



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In order to find out the significant difference of post-test Forced expiratory volume among Meditation, Pranayama and Control group one way analysis of variance was used to compare the Forced expiratory volume of post-test .

The results of one way Analysis of variance of post-test Forced expiratory volume among three group of sample is presented in Table 4

TABLE – 4
ONE WAY ANALYSIS OF VARIANCE SHOWS THE COMPARISON OF POST-TEST FORCED EXPIRATORY VOLUME AMONG MEDITATION GROUP, PRANAYAMA GROUP AND CONTROL GROUP

Sr. No.	Components	Source of Variance	DF	SS	MSS	F-ratio
1.	Forced expiratory volume	Between group	2	6.75	3.37	3.47 *
		Within group	42	41.23	.98	

Table-4 shows the statistical comparison of post -test Forced expiratory volume among Meditation, Pranayama and Control group.

The result of the study reveals that there were significant difference were found in post Forced expiratory volume (F= 3.47,P<.05) among Meditation , Pranayama and Control group .

TABLE – 5
L.S.D. POST HOC STATISTICAL COMPARISON FOR FORCED EXPIRATORY VOLUME OF MEDITATION GROUP, PRANAYAMA GROUP AND CONTROL GROUP.

Mean Scores			Mean difference.	C.D. at 5% level
Meditation group	Pranayama group	Control group		
3.04	4.05		1.01	0.87*
3.04		2.65	0.39	0.87NS
	4.05	2.65	1.40	0.87*

Table 5 shows that the L.S.D. post hoc statistical comparison for Forced expiratory volume of Meditation , Pranayama and Control group.

Table 5 reveals that the (i) Statistically significant difference of post-test Forced expiratory volume was found between pranayama group and pranayama group, the meditation group was more significantly increase the Forced expiratory volume as compare than meditation group . That means pranayama was more effective to increase Forced expiratory volume.

as compare to their counterparts (ii) No significant difference of post-test Forced expiratory volume was found between meditation group and control group, (iii) Statistically significant difference of post-test Forced expiratory volume was found between pranayama group and control group , the pranayama group was more significantly increase the Forced expiratory volume as compare than control group . That means Pranayama was more effective to increase Forced expiratory volume as compare to their counterparts

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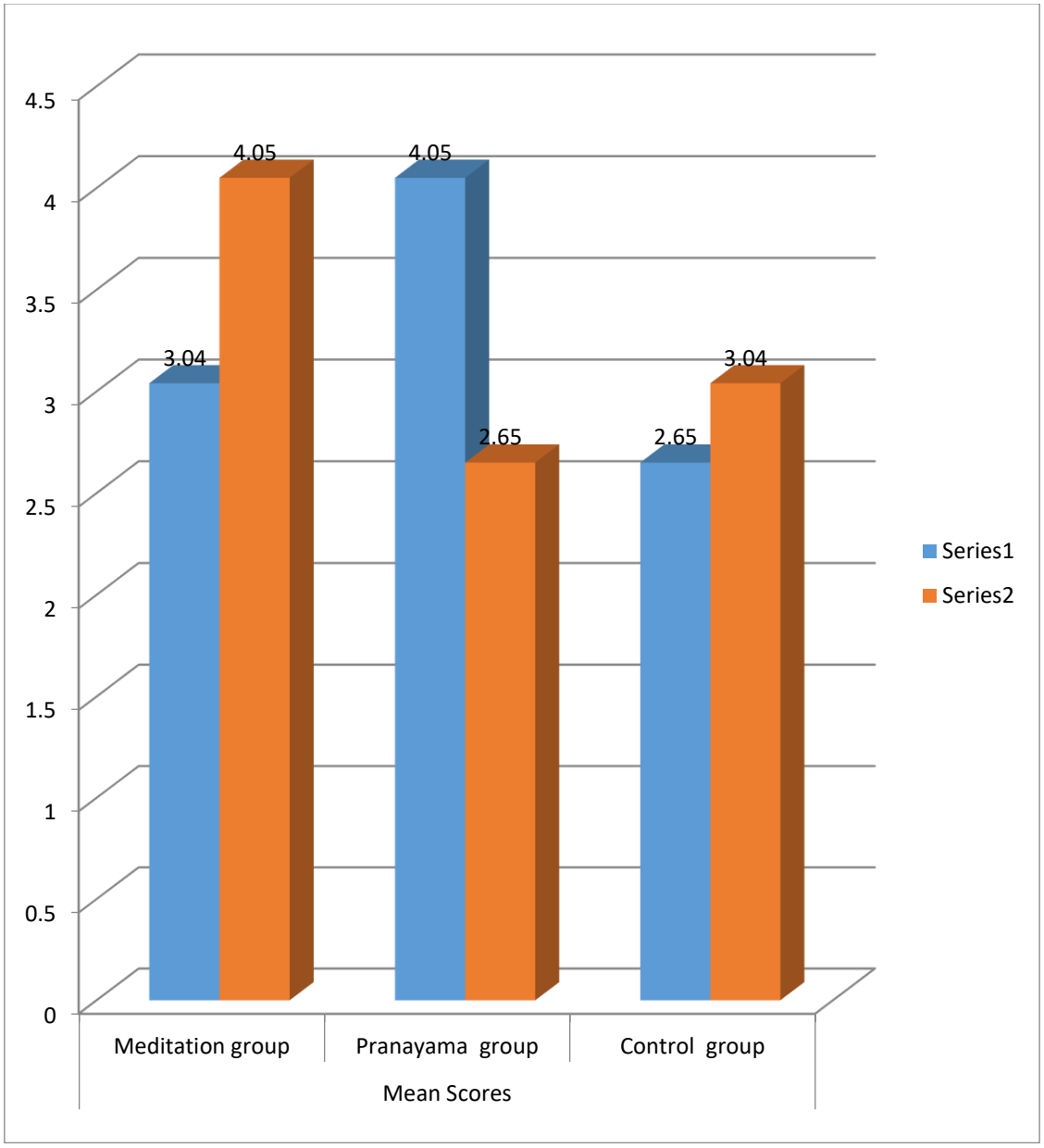
FIGURE-3
L.S.D. POST HOC STATISTICAL COMPARISON FOR FORCED EXPIRATORY VOLUME OF MEDITATION , PRANAYAMA AND CONTROL GROUP



IV. DISCUSSION

It was hypothesised that, there would be significant differences of the effect of the Meditation and Pranayama on Forced expiratory volume among college women. With regards to Pre-Test mean score (Table 1) of Forced expiratory volume of Meditation group was obtained 3.12, The Pre-Test mean score of Forced expiratory volume of Pranayama group was 4.07 and Pre-Test mean score of Forced expiratory volume of Control group was 2.82 respectively. However, the standard deviation of Pre-Test Forced expiratory volume of meditation group was obtained 0.45, Pre-Test Forced expiratory volume of Pranayama group was obtained 0.31and standard deviation of Pre-Test Forced expiratory volume of control group was obtained 0.24 respectively. The result of the study (Table-35) reveals that there were no significant difference were found in pre-test Forced expiratory volume (F= 1.57) among Meditation, Pranayama and Control group . In addition, the Post-Test mean score (Table 2) of Forced expiratory volume of Meditation group was obtained 3.04, The Post-Test mean score of Forced expiratory volume of Pranayama group was 4.051 and Post-Test mean score of Forced expiratory volume of Control group was 2.65 respectively.

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However the standard deviation of Post-Test Forced expiratory volume of meditation group was obtained 0.31, Post-Test Forced expiratory volume of Pranayama group was obtained 0.35 and standard deviation of Post-Test Forced expiratory volume of control group was obtained 0.16 respectively, The result of the study (Table-3) reveals that there were significant difference were found in post Forced expiratory volume ($F= 3.47, P<.05$) among Meditation , Pranayama and Control group . The findings of the study (Table-4) showed that Statistically significant difference of post-test Forced expiratory volume was found between pranayama group and pranayama group, the meditation group was more significantly increase the Forced expiratory volume as compare than meditation group . pranayama was more effective to increase Forced expiratory volume as compare to meditation group . however , No significant difference of post-test Forced expiratory volume was found between meditation group and control group, whereas, Statistically significant difference of post-test Forced expiratory volume was found between pranayama group and control group , the pranayama group was more significantly increase the Forced expiratory volume as compare than control group . Pranayama was more effective to increase Forced expiratory volume as compare to their control group. Thus, the hypothesis regarding there would be significant differences of the effect of the Meditation and Pranayama on Forced expiratory volume among college women was accepted.

REFERENCES

[1]. Bharshankar JR, Bharshanker RN, Deshpande VN, Kaore SB, Gosavi GB. Effect of yoga on cardiovascular system in subjects above 40 years. *Indian J Physiol Pharmacol.* 2003;47:202–6. [PubMed] [Google Scholar]

[2]. Bjlani RL. 3rd ed. New Delhi: Jaypee Brothers; 2004. Understanding medical physiology; pp. 871–910. [Google Scholar]

[3]. Murugesan R, Govindarajulu N, Bera TK. Effect of selected yogic practices on the management of hypertension. *Indian J Physiol Pharmacol.* 2000;44:207–10. [PubMed] [Google Scholar]

[4]. Nagarathna R, Nagendra HR. 4th ed. Bangalore: Swami Vivekananda Yoga Prakashana; 2006. Yoga for promotion of positive health. [Google Scholar]

[5]. Shannahoff-Khalsa DS, Kennedy B. The effects of unilateral forced nostril breathing on the heart. *Int J Neurosci.* 1993;73:47–60. [PubMed] [Google Scholar]

[6]. Telles S, Nagarthna R, Nagendra HR. Autonomic changes during "OM" meditation. *Indian J Physiol Pharmacol.* 1995;39:418–20. [PubMed] [Google Scholar]

[7]. Telles S, Nagarthna R, Nagendra HR. Breathing through a particular nostril can alter metabolism and autonomic activities. *Indian J Physiol Pharmacol.* 1994;38:133–7. [PubMed] [Google Scholar]

[8]. Upadhyay Dhungel K, Malhotra V, Sarkar D, Prajapati R. Effect of alternate nostril breathing exercise on cardiorespiratory functions. *Nepal Med Coll J.* 2008;10:25–7. [PubMed] [Google Scholar]

[9]. Varun M, Tandon OP, Rajkumar P, Tarun KS, Stany WL, Nagamma T, et al. Suryanadi anuloma viloma pranayama modifies autonomic activity of heart. *J Yoga Spring.* 2009;8:1. [Google Scholar]