



EFFECT OF YOGIC EXERCISE ON SELECTED PULMONARY FUNCTION TESTS AMONG MALE VOLLEYBALL PLAYERS

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Abstract:

The purpose of the study was to find out the impact of yogic exercise on selected pulmonary function tests namely vital capacity, forced vital capacity, slow vital capacity, and maximum voluntary ventilation among male volleyball players. To achieve the purpose of the study thirty male volleyball players have been randomly selected from various colleges in the state of Tamil Nadu, India. The age of subjects were ranged from 18 to 25 years. The subjects had past experience of at least three years in race walking and only who those represented their respective college teams were taken as subjects. The subjects were randomly assigned into two groups of fifteen each, such as experimental and control groups. The experimental group participated in the yogic exercise for 3 days a week, one session per day and for 8 weeks each session lasted 90 minutes. The control group maintained their daily routine activities and no special training was given. The subjects of the two groups were tested on selected variables prior and immediately after the training period. The collected data were analyzed statistically through analysis of covariance (ANCOVA) to find out the significance difference, if any between the groups. The 0.05 level of confidence was fixed to test the level of significance difference, if any between groups. The results of the study showed that there was significant level differences exist between yogic exercise group and control group. And also yogic exercise group showed significant improvement on level of vital capacity, forced vital capacity, slow vital capacity, and maximum voluntary compared to control group.

Keywords. Vital capacities, forced vital capacity, slow vital capacity, and maximum voluntary.

Introduction

Yoga can counterbalance the negative effects of sports. Today highly trained children in sports and athletics can experience physical problems in later life. This happens because many sports coaches and instructors rarely pause to consider what the might be doing to a youngster's body when they encourage him or her to concentrate on breaking records or winning more matches. Studies on sports and exercise have shown that physical exercise, performed in a balanced, recreational way, can help to reduce stress levels in the brain. It does this mainly by encouraging the release of endorphins, the body's natural painkillers, which enable us to overcome stress. Pulmonary function is a long term predictor for overall survival rates in both genders and could be used as tool in general health assessment. Thus, the aim of the present study was to find out influences of yogic exercise on selected physiological variables among male volleyball players.

Methodology

To achieve the purpose of the study thirty male volleyball players have been randomly selected from various colleges in the state of Tamil Nadu, India. The age of subjects were ranged from 18 to 25 years. The subjects had past experience of at least three years in race walking and only who those represented their respective college teams were taken as subjects. The subjects were randomly assigned into two groups of fifteen each, such as experimental and control groups. The experimental group participated in the yogic exercise for 3 days a week, one session per day and for 8 weeks each session lasted 90 minutes. The control group maintained their daily routine activities and no special training was given. The subjects of the two groups were tested on selected variables prior and immediately after the training period. The collected data were analyzed statistically through analysis of covariance (ANCOVA) to find out the significance difference, if any between the groups. The 0.05 level of confidence was fixed to test the level of significance difference, if any between groups.

**TABLE-I
CRITERION MEASURES**

S.No	Variables	Test/Equipment used	Measuring unit
Physiological variables			
1	Vital capacity	Spiro meter	In liter/s
2	Forced vital capacity		
3	Slow vital capacity		
4	Maximum voluntary ventilation		

**TABLE – II
DESCRIPTIVE ANALYSIS OF PULMONARY FUNCTION TESTS AMONG EXPERIMENTAL AND CONTROL GROUPS**

S.No	Variables	Group	Pre-Test Mean	SD (\pm)	Post –Test Mean	SD (\pm)	Adjusted Mean
1	Vital capacity	YEG	2.79	0.04	2.86	0.01	2.86
		CG	2.78	0.01	2.83	0.05	2.83
2	Forced vital capacity	YEG	3.80	0.07	3.92	0.02	3.92
		CG	3.77	0.02	3.85	0.08	3.85
3	Slow vital capacity	YEG	2.85	0.08	3.04	0.04	3.05
		CG	2.816	0.02	2.94	0.11	2.94
4	Maximum voluntary ventilation	YEG	128.73	4.39	136.49	2.43	136.44
		CG	127.436	3.30	132.59	4.66	132.64

CG= Control group

SPTWTTG= yogic exercise group

The tables-II the pre, post-test means, standard deviations and adjusted means on physiological variables of male volleyball players were numerical presented. The

analysis of covariance on selected variables of control group and yogic exercise is presented in table – III.

**TABLE – III
COMPUTATION OF ANALYSIS OF COVARIANCE ON PULMONARY FUNCTION TESTS AMONG MALE VOLLEYBALL PLAYERS**

S.No	Variables	Test	Sum of variance	Sum of squares	df	Mean square	F ratio
1	Vital capacity	Pre-test	B.G.	0.002	1	0.002	2.78
			W.G.	0.02	28	0.001	
		Post-test	B.G.	0.01	1	0.008	6.76*
			W.G.	0.03	28	0.001	
		Adjusted means	B.S.	0.01	1	0.006	5.41*
			W.S.	0.03	27	0.001	
2	Forced vital capacity	Pre-test	B.G.	0.01	1	0.005	2.42
			W.G.	0.06	28	0.002	
		Post-test	B.G.	0.04	1	0.035	10.34*
			W.G.	0.09	28	0.003	
		Adjusted means	B.S.	0.03	1	0.03	8.66*
			W.S.	0.09	27	0.004	

3	Slow vital capacity	Pre-test	B.G.	0.01	1	0.01	3.22
			W.G.	0.09	28	0.003	
		Post-test	B.G.	0.08	1	0.08	12.14*
			W.G.	0.18	28	0.007	
		Adjusted means	B.S.	0.08	1	0.08	11.98
			W.S.	0.18	27	0.007	
4	Maximum voluntary ventilation	Pre-test	B.G.	12.65	1	12.65	0.83
			W.G.	422.78	28	15.09	
		Post-test	B.G.	114.28	1	114.28	8.24*
			W.G.	388.15	28	13.86	
		Adjusted means	B.S.	104.98	1	104.98	7.35*
			W.S.	385.30	27	14.27	

*Significant at 0.05 level of confidences

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

In the table the results of analysis of covariance on vital capacity, forced vital capacity, slow vital capacity and maximum voluntary ventilation. The obtained 'F' ratio of 2.78, 2.42, 3.22 and 0.83 for Pre-test means was less than the table value of 4.20 for df 1 and 28 required for significance at 0.05 level of confidence on vital capacity, forced vital capacity, slow vital capacity, and maximum voluntary ventilation. The obtained 'F' ratio of 6.76, 10.34, 12.14 and 8.24 for post-test means was greater than the table value of 4.20 for df 1 and 28 required for significance at 0.05 level of confidence on vital capacity, forced vital capacity, slow vital capacity, and maximum voluntary ventilation. The

obtained 'F' ratio of 5.41, 8.66, 11.98 and 7.35 for adjusted post-test means was greater than the table value of 4.21 for df 1 and 4.21 required for significance at 0.05 level of confidence on vital capacity, forced vital capacity, slow vital capacity, and maximum voluntary ventilation. The result of the study indicated that there was a significant difference among the adjusted post test means of control group and yogic exercise group on control group. And also yogic exercise group showed significant improvement on vital capacity, forced vital capacity, slow vital capacity, and maximum voluntary ventilation compared to control group.

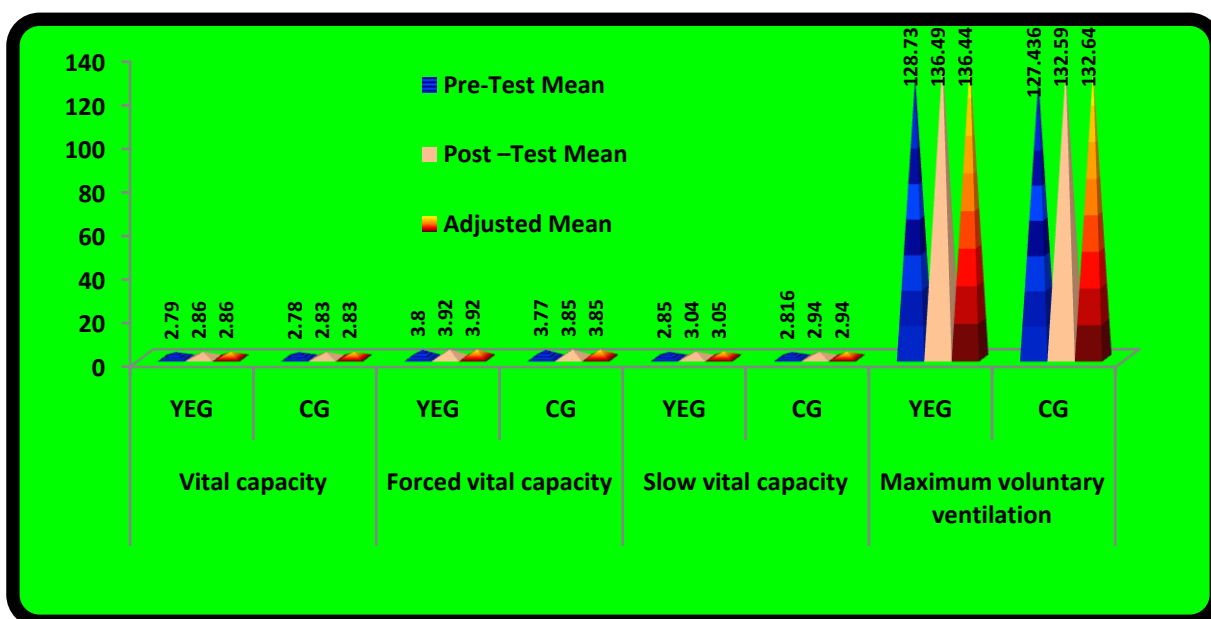


FIGURE-I
THE PRE, POST AND ADJUSTED MEAN VALUES OF VITAL CAPACITY, FORCED VITAL CAPACITY, SLOW VITAL CAPACITY AND MAXIMUM VOLUNTARY VENTILATION OF BOTH EXPERIMENTAL AND CONTROL GROUPS

Discussion of findings

The results of the study indicate that the experimental group which underwent yogic exercise group had showed significant improved in the selected variables namely such as vital capacity, forced vital capacity, slow vital capacity, and maximum voluntary ventilation when compared to the control group. The control group did not show significant improvement in any of the selected variables. The past studies on selected pulmonary function tests reveals of Chakraborty, et al (2013), Rajeshwar, et al (2015).

Conclusions

From the analysis of data, the following conclusions were drawn.

1. The experimental group volleyball players showed significant improvement in all the selected variables such vital capacity, forced vital capacity, slow vital capacity, and maximum voluntary ventilation.
2. The control group volleyball players did not show significant improvement in any of selected variables.

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