

Research Paper :

## Influence of selected yogasanas training on physiological parameters

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### ABSTRACT

The purpose of this study was to investigate the influence of yogasana training on respiratory rate and vital capacity. Forty boys students were selected as subjects and they were divided into 2 equal groups each consisting of twenty male students. Group-I acted as experimental group who under went yogasana practice for twelve weeks and Group-II considered as control group who did not undergo any special training programme. Respiratory rate was measured by expirograph and vital capacity was measured by spiro meter (computerized digital) and pre and post tests were conducted. Tests were statistically examined by employing analysis of covariance (ANCOVA) to find out significant difference. The level of confidence was fixed at 0.05 level. The results of the study showed that there was a significant improvement on respiratory rate and vital capacity due to twelve weeks of yogasana practice.

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**Key words :** Yogasana, Respiratory rate, Vital capacity

The most important benefit of yoga is physical and mental therapy. The aging process, which is largely an artificial condition, caused mainly by auto-intoxication or self-poisoning, can be slowed down by practicing yoga. By keeping the body clean, flexible and well lubricated, we can significantly reduce the catabolic process of cell deterioration. Moorthy indicated that yoga exercises were more beneficial than the non-yogic to improve minimum fitness of school children in the age group of six to eleven years. Moorthy further stated that both experimental group I and experimental group II for the boys showed significant improvement after six weeks training when compared to the control group. Although the percentage improvement was seen much greater in yogic exercise group than in physical exercise group, the difference between these two systems of exercises was not found to be significant.

Nayar *et al.* (1975) investigated the effect of yogic exercises on human physical efficiency. The studies were conducted on 53 cadets of National Defense Academy (NDA) representing 3 groups, doing routine NDA training, NDA training plus athletics and NDA training plus yogic exercises. Each cadet was assessed both under basal state and during a fixed exercise non-bicycle ergo meter. The parameters of assessment induced ventilation minute volume, rate of respiration, oxygen consumption, pulse rate, blood pressure, mechanical volume, rate of respiration, *viz.*, vital capacity (VC) maximum breathing capacity (MBC), forced expiratory volume (fev<sub>10</sub> sec) and breath holding time. All the 3 groups showed a

significant decrease in pulse rate during exercise. The yogic group in addition recorded a highly significant increase in breath holding time (from 54 to 106 sec) and VC (from 1.98 to 2.89) to 1.94 liters per M<sup>2</sup> body surface area)

Gopal *et al.* (1973) studied the effect of yogasanas and exercise training on blood pressure, pulse rate and some respiratory function. Two groups of male volunteers, 20-33 years in age and having the same average height and weight were studied. The experimental group consisted of 14 subjects in yoga asana and pranayama for a period of six weeks. The control group consisted of 14 normal untrained subjects, who carried out non-yogic exercise to both the groups before and after training. The results of both the groups were compared. The trained persons had greater vital capacity, more tidal volume and less respiratory rate than the untrained group. The prescribed standard exercise increased the respiratory rate in both groups but the increase was less in the trained group who instead exhibited a corresponding increase in total volume

### Objective of study:

The purpose of the study was to find out the effect of yoga asana on physiological parameters of boys student.

### METHODOLOGY

#### Sample:

To achieve the purpose of the study, 40 school boys

who were studying in T.T.A. Hr. Secondary school during the year 2008-2009 April, were randomly selected as subjects. The selected criterion variables were respiratory rate, and vital capacity.

**Training programme :**

To achieve the purpose of the study, experimental group underwent yogasana practice for 12 weeks between 6 am-6.45 am.

Warm-up- 10 minutes, I -Phase: Padmasana-2 minutes, Ardha Salabhasana-3 minutes, Salabhasana-2 minutes, Savasana- 5 minutes.

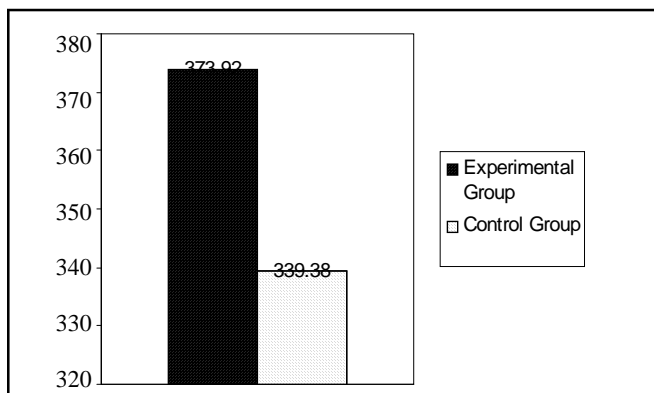
II-Phase: Ardha Halasana-2 minutes, Vibrarithakarani -2 minutes, Sarvangasana- 2 minutes, Matyasana – 3 minutes, Halasana -2 minutes, Savasana – 8 minutes.

**Statistical analysis :**

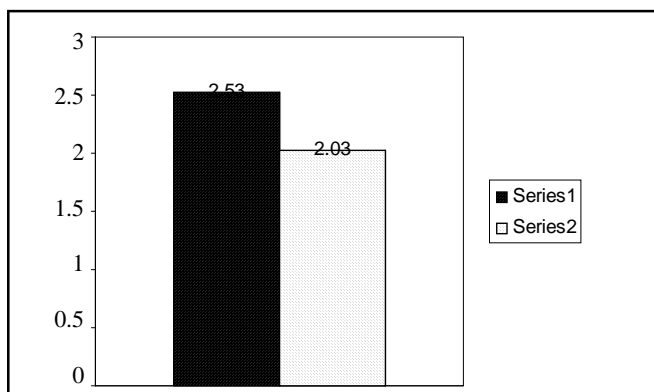
The data were collected from the two groups before and after the experiment period, Respiratory rate, vital capacity were statistically examined by employing analysis of covariance (ANCOVA) to find out significant difference. The level of confidence was fixed at 0.05 level.

The mean differences between the experimental group and the control group were 33.26 and 62.5, respectively, greater than the control group of the confidence level of interval at .05 level confidence.

Table 2 shows the difference between the paired



**Fig. 1 :** Analysis of covariance for the data of respiratory rate rate of Yogasana group and control group



**Fig. 2 :** Analysis of covariance for the data of vital capacity of Yogasana group and control group

Table 1 : Analysis of covariance for the data of respiratory rate of Yogasana group and control group							
Item	Experimental group	Control group	SOV	SS	Df	MS	'F' ratio
Pre-test mean	267.80	313.07	Between	21.499.00	3	7166.33	1.4037
			Within	285892.00	56	5105.21	
Post-test mean	354.87	320.33	Between	67140.18	3	22380.06	6.9266*
			Within	180968.80	56	3231.05	
Adjusted post-test mean	373.92	339.38	Between	68995.91	3	22998.64	23.735*
			Within	53294.40	55	960.99	

\* indicates significance of value at P=0.05

Table 2 : Analysis of covariance for the data of forced vital capacity of Yogasana group and control group							
Item	Experimental group	Control group	SOV	SS	df	MS	'f' Ratio
Pre-test mean	2.00	1.96	Between	0.36	3	0.12	0.8374
			Within	8.07	56	0.14	
Post-test mean	2.53	2.51	Between	2.28	3	0.76	7.19931*
			Within	5.90	56	0.11	
Adjusted post-test mean	2.53	2.03	Between	2.56	3	0.85	8.595*
			Within	5.46	56	0.10	

\* indicate significance of value at P=0.05

adjusted final means of the forced vitacapacity among the experimental group. The mean difference between the groups is of .35 at .05 level of confidence.

Table 2 indicates that the pre-test mean of respiratory rate between experimental group and control group and control group were  $28.07 \pm 2.91$ , respectively. The obtained 'F' ratio of 0.01 indicated that the pre-test means was not significant at 0.05 level of confidence.

## OBSERVATIONS AND DISCUSSION

There was significant difference on respiratory rate when compared to the experimental group between the control groups.

There was significant difference on forced vital capacity between the experimental group and control group.

Arambula *et al.* (2001) studied the physiological correlates of a highly practiced Kundalini yoga meditation. Visual analyses of the data showed a decrease in respiration rate during meditation from mean of 11 breaths/min for the pre- and 13 breaths/min for post base line to a mean of 5 breaths /min during the yogasana. Tran *et al.* (2001) conducted the effects of hatha yoga practice on the health related aspects of physical fitness. The subjects were evaluated before and after the 8 week training programme. Absolute and relative maximal oxygen uptake increased by 7% and 6%, respectively ( $p < 0.01$ ). These findings indicated that regular Hatha yoga practice can elicit improvements in the health related aspects of physical fitness. Telles *et al.* (1997) carried comparison of changes in autonomic and respiratory parameters of girls after of yoga and game. The heart rate, respiratory rate were recorded for 20 community home girls (home group) and for 20 age matched girls from a regular school (school group). The former group had a significantly higher rate of breathing and a more irregular breath pattern known to correlate with high fear and anxiety, than the school group. These results suggest that a yoga programme which includes relaxation, awareness and graded physical activity is a useful addition to the routine of community home children examined, on the effect of yoga training on pulmonary functions. Yoga training produced statistically significant ( $p < 0.005$ ) increase FEV, FEV1 increased significantly ( $p < 0.001$ ) after the yoga training. Their study showed that yoga training for 6 months improves lung function. Yadav and Das (2002) investigated the effect of yogic practice on pulmonary functions in young during recent years, a lot of research work has been done to show the beneficial effects of yoga training. The observations were recorded by MEDSPIROR, in the form of FVC, FEV1 on day-1, after 6 weeks and 12

weeks of their yogic practice. There was significant increase in FVC, FEV1 at the end of the 12 weeks.

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