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Effect of yogic practice on physiological fitness among school boys

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Abstract
The objective of the study was to assess the effect of yogic practice on Physiological fitness among school boys. For this study 200 subjects in which 100 of experimental group and 100 of control group. All the samples were selected from Govt. Boys Senior Secondary School, Baprola (New Delhi) India. The age group of the selected subjects between 12 to 16 years and all the samples selected on random basis. The regular yogic training was provided to the experimental group and there was no treatment given to the control group. To measure the Physiological variables such as breath holding capacity, blood pressure (Systolic and Diastolic), Vital capacity, Pulse rate and respiratory rate etc of the selected subjects reliable equipment were used. Breath holding capacity was measured with stopwatch, Blood pressure by sphygmomanometer, vital capacity by Spirometer, Pulse rate by Pulse oxiometer and respiratory rate by stopwatch. The duration of the training period was limited to twelve weeks and practice daily from Monday to Saturday. The subjects were performed the activities for a duration of 75 minute from 4.30pm to 5.45pm in a training session during this period. The results of the study found that there is significant improvement was observed between pre test and post test of breath holding capacity, blood pressure (Systolic and Diastolic), Vital capacity, Pulse rate and respiratory rate of school going male children of the experimental group. No significant difference was found between pre test and post test of selected variables of Physiological fitness of school going boys of control group.

Keywords: Breath holding capacity, blood pressure (systolic and diastolic), vital capacity, pulse rate and respiratory rate

Introduction

Physiology is the branch of science. It deals with functioning of human body and its organs. It is a subcategory of biology. Physiological effects of exercise are well known, physiological variables are one of the most important factors that determine the performance level of an individual. Sports performance depends largely on physical fitness factor and the physiological status of the athlete. Excellence in sports is not possible without developed physiological variables. Fitness factor are most important for predicting athletic performance. Natural ability is the promise of potential but fundamental are the foundations of excellence. Physical fitness and physiological variables are the ideal indicator of sports performance status of an individual. Physiological variables play an important role in almost all the games and sports. Physiological systems are highly adaptable to exercise (Bachman & Horvath, 2013). Measurement of pulse rate, breathing frequency, blood pressure, and muscle tension for most of the well-known yogic exercises reveals that yoga practice is such a unique type of workout, which has a great influence on the body, but with less stress on that body (Kollak, 2008). Physiology is the functioning of internal organs. Regular exercise improves the functioning of heart, lungs and glands etc. For the physiological system of the body to be fit they must function well enough to support the specific activity individual is performing. Moreover different activities make different demands upon the organism with respect to circulatory, respiratory, metabolic and neurological process which are specific to the activity. The lungs, heart and blood perform a vital function on the body's supply system. They supply to the muscle with necessary fuels like oxygen and carry wastes such as carbon dioxide and lactic acid. The cardio respiratory system in the athletes needs to be developed. Good physiology is basic need for top level sports performance. The various physiological components are resting pulse rate, blood pressure, breath holding time, vital capacity, anaerobic power, aerobic power, heart rate, breathing rate, Vo2 max etc. The pulse rate, blood pressure, breath holding capacity, breathing rate and vital capacity are the variables taken in the side of physiological variables in the study. These variables are belong to the circulatory system and respiratory system of the body.

Methodology

Subjects

For this study 200 subjects in which 100 of experimental group and 100 of control group. All the samples selected from Govt. Boys Senior Secondary School, Baprola (New Delhi) India. The age of the selected subjects between 12 to 16 years and all the samples selected on random basis.

Tools

To measure the Physiological fitness of the selected subjects, Breath holding capacity was measured with stopwatch, Blood pressure by sphygmomanometer, vital capacity by Spirometer, Pulse rate by Pulse oxiometer and respiratory rate by stopwatch etc.

Statistical analysis

To assess the effect of yogic exercises on Physiological fitness of school going boys
"t" test was used.

Results and Discussion

Descriptive statistics are presented in the following tables

Table 1: Showing mean values between pre test and post test score on selected Physiological fitness component i.e. Resting pulse rate

Variable	Group	Pre-test		Post-test		't' value
		Mean	Sd	Mean	Sd	
Resting pulse rate	Experimental	72.15	3.34	68.24	3.37	2.48*
	Control	71.06	4.14	71.26	3.20	0.51

't'(0.05)=1.98

From table no.1 results show that the mean values of pre test and post test of experimental group in Resting pulse rate were 72.15 and 68.24 respectively. The obtained 't' ratio was 2.48, which is greater than the required value 1.98 at 0.05; so it was found statistically significant. The mean values of pre test and post test on control group in Resting pulse rate were 71.06 and 71.26 respectively. The obtained't' ratio was 0.51 which is less than the table value of 1.98 at 0.05 level; so it was found statistically insignificant.

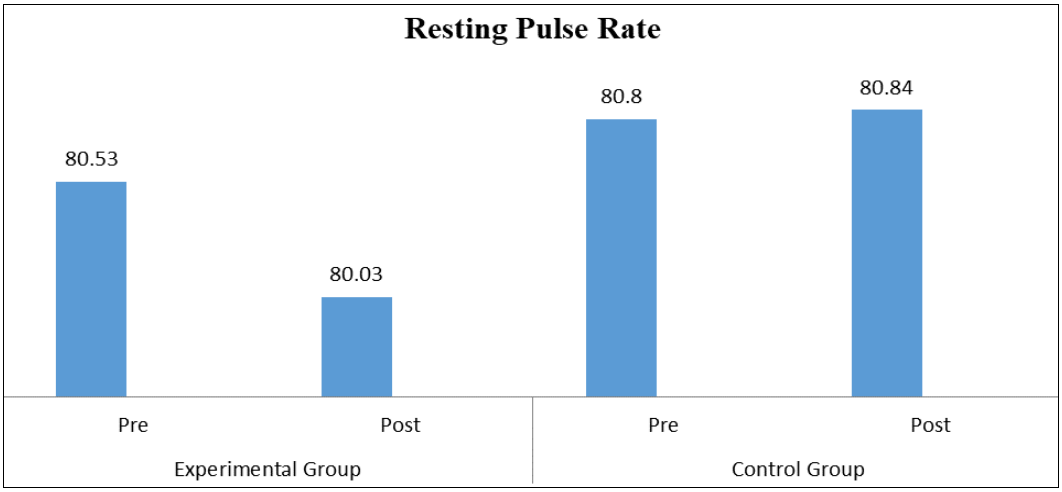

Fig 1

Table 2:

Showing mean values between pre test and post test score on selected Physiological fitness component i.e. Resting blood pressure (Systolic)

Variable	Group	Pre-test		Post-test		't' value
		Mean	Sd	Mean	Sd	
Resting blood pressure (Systolic)	Experimental	123.57	3.59	121.79	3.23	2.78*
	Control	125.7	11.50	126.6	11.68	0.04

't'(0.05)=1.98

From table no.2 results show that the mean values of pre test and post test of experimental group in Resting blood pressure (Systolic) were 123.57 and 121.79 respectively. The obtained 't' ratio was 2.78, which is greater than the required value 1.98 at 0.05; so it was found statistically significant. The mean values of pre test and post test on control group in Resting blood pressure (Systolic) were 125.7 and 126.6 respectively. The obtained't' ratio was 0.04 which is less than the table value of 1.98 at 0.05 level; so it was found statistically insignificant.

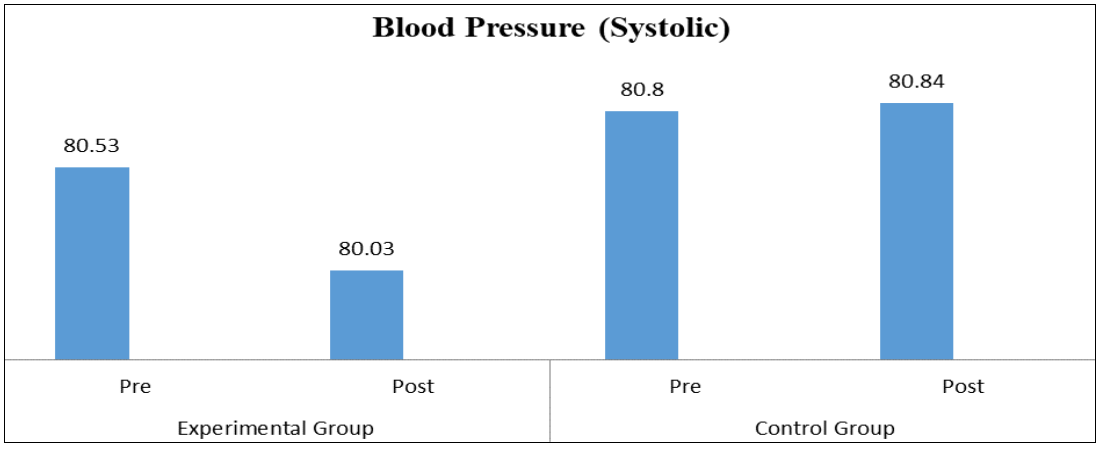

Fig 2

Table 3: Showing mean values between pre test and post test score on selected Physiological fitness component i.e. Resting blood pressure (Diastolic)

Variable	Group	Pre-test		Post-test		't' value
		Mean	Sd	Mean	Sd	
Resting blood pressure (Diastolic)	Experimental	81.41	3.30	80.02	1.93	4.58*
	Control	80.8	2.73	80.84	2.47	0.43

't'(0.05)=1.98

From table no.3 results show that the mean values of pre test and post test of experimental group in Resting blood pressure (Diastolic) were 81.41 and 80.02 respectively. The obtained 't' ratio was 4.58, which is greater than the required value 1.98 at 0.05; so it was found statistically significant. The mean values of pre test and post test on control group Resting blood pressure (Diastolic) were 80.8 and 80.84 respectively. The obtained't' ratio was 0.43 which is less than the table value of 1.98 at 0.05 level; so it was found statistically insignificant.

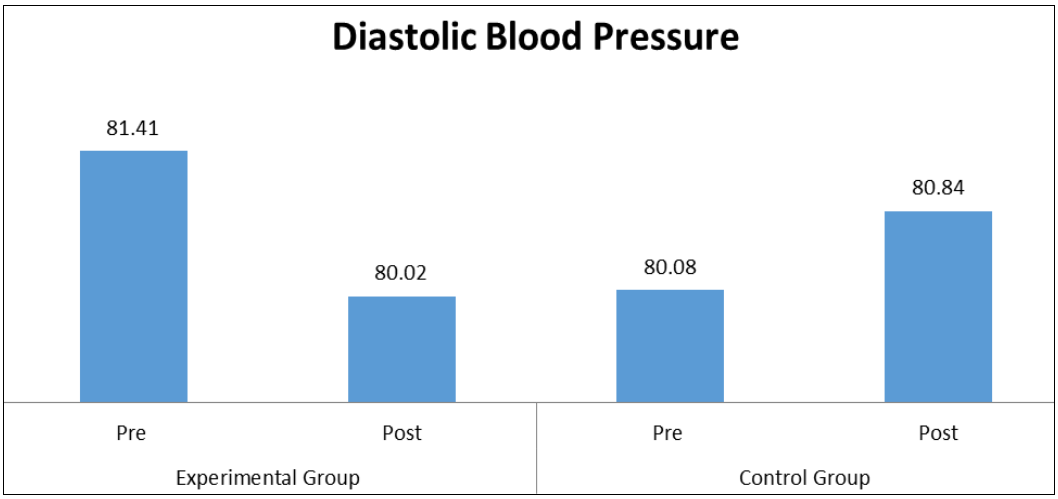

Fig 3

Table 4: Showing mean values between pre test and post test score on selected Physiological fitness component i.e. Vital Capacity

Variable	Group	Pre-test		Post-test		't' value
		Mean	Sd	Mean	Sd	
Vital Capacity	Experimental	4.78	0.47	5.26	0.49	4.31*
	Control	4.65	0.47	4.66	0.49	0.88

't'(0.05)=1.98

From table no.4 results show that the mean values of pre test and post test of experimental group in Vital Capacity were 4.78 and 5.26 respectively. The obtained 't' ratio was 4.31, which is greater than the required value 1.98 at 0.05; so it was found statistically significant. The mean values of pre test and post test on control group Vital Capacity were 4.65 and 4.66 respectively. The obtained't' ratio was 0.88 which is less than the table value of 1.98 at 0.05 level; so it was found statistically insignificant.

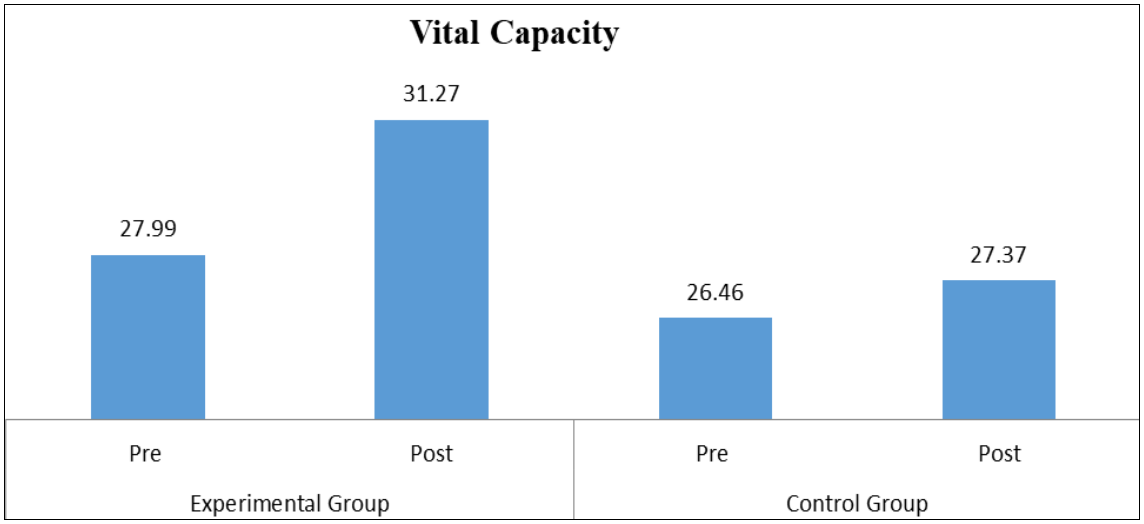

Fig 4

Table 5: Showing mean values between pre test and post test score on selected Physiological fitness component i.e. Respiratory Rate

Variable	Group	Pre-test		Post-test		't' value
		Mean	Sd	Mean	Sd	
Respiratory Rate	Experimental	13.27	1.67	12.03	1.12	4.23*
	Control	13.49	1.67	13.21	1.54	0.22

't'(0.05)=1.98

From table no.5 results show that the mean values of pre test and post test of experimental group in Respiratory Rate were 13.27 and 12.03 respectively. The obtained't' ratio was 4.23, which is greater than the required value 1.98 at 0.05; so it was found statistically significant. The mean values of pre test and post test on control group Respiratory Rate were 13.49 and 13.21 respectively. The obtained't' ratio was 0.22 which is less than the table value of 1.98 at 0.05 level; so it was found statistically insignificant.

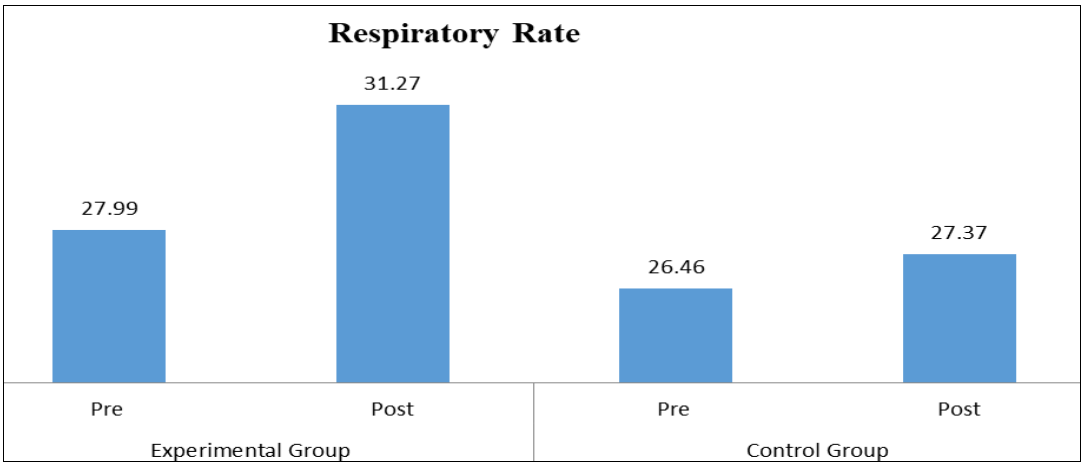

Fig 5

Table 6: Showing mean values between pre test and post test score on selected Physiological fitness component i.e. Breathing holding capacity

Variable	Group	Pre-test		Post-test		't' value
		Mean	Sd	Mean	Sd	
Breathing Holding Capacity	Experimental	27.99	4.06	31.27	4.12	5.25*
	Control	26.46	4.19	27.37	5.75	0.16

't'(0.05)=1.98

From table no.6 results show that the mean values of pre test and post test of experimental group in Breath Holding Capacity were 27.99 and 31.27 respectively. The obtained 't' ratio was 5.25, which is more than the required value 1.98 at 0.05; so it was found statistically significant. The mean values of pre test and post test on control group Breathing Holding Capacity were 26.46 and 27.37 respectively. The obtained't' ratio was 0.16 which is less than the table value of 1.98 at 0.05 level; so it was found statistically insignificant.

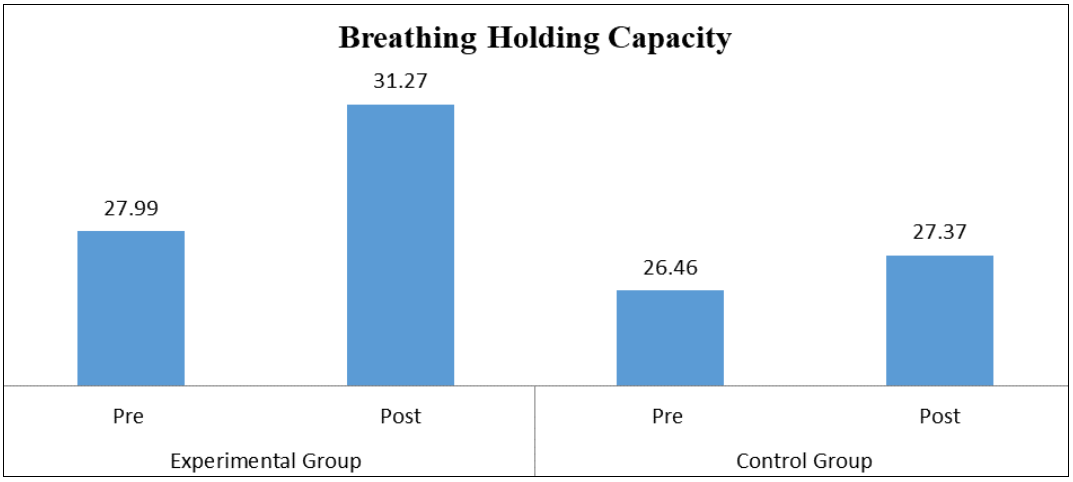

Fig 6

Conclusions

On the basis of the above discussion it may be concluded that

1. There is significant difference was observed between pre test and post test of Resting pulse rate of school going male children of the experimental group. No significant difference was found between pre test and post test of Resting pulse rate of school going boys of control group.
2. There is significant difference was observed between pre test and post test of Resting blood pressure of school going male children of the experimental group. No significant difference was found between pre test and post test of Resting blood pressure of school going boys of control group.
3. There is significant difference was observed between pre test and post test of vital capacity of school going male children of the experimental group. No significant difference was found between pre test and post test of vital capacity of school going boys of control group.
4. There is significant difference was observed between pre test and post test of Respiratory rate of school going male children of the experimental group. No significant difference was found between pre test and post test of Respiratory rate of school going boys of control group.
5. There is significant difference was observed between pre test and post test of Breathing holding capacity of school going male children of the experimental group. No significant difference was found between pre test and post test of Breathing holding capacity of school going boys of control group.

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