



ISSN: 2456-4419

Impact Factor: (RJIF): 5.18

Yoga 2018; 3(2): 957-959

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www.theyogicjournal.com

Received: 19-05-2018

Accepted: 21-06-2018

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Effect of six week Anulom vilom pranayama on selected physiological variables among school girls of Chandigarh

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Abstract

The objective of the study was to find out the effect of six week Anulom vilom pranayama on physiological variables among school students. For the purpose of the study, twenty-four (24) school girls from Government High School Sarangpur, Chandigarh were selected. The age of the subject range between 14-15 years, total numbers of subjects were divided into two group's i.e. experimental group (12) and control group (12). Experimental group was given Anulom-Vilom Pranayama and control group was not given any kind of training. The training programmed was scheduled for 6 weeks by the researcher. It was 45 minutes pranayama training for 5 days in a week. All groups were pre and post tested on physiological variables (vital capacity, systolic blood pressure, diastolic blood pressure, breath hold capacity, resting pulse rate and respiratory rate). The data was analyzed by employing pair 't'-test. The level of significance was set at 0.05. Statistical on gathered data showed that there were significant differences found on vital capacity, breath hold capacity, resting pulse rate and respiratory rate. The control group showed no significant differences found on physiological variables.

Keywords: Anulom vilom pranayama, vital capacity, blood pressure, resting pulse rate

Introduction

Yoga is an art and science of living healthy life. The word yoga is derived from Sanskrit word "yuj" which means to join or unite. The practice of yoga leads to the union of individual consciousness with the universal consciousness. The philosophy of yoga is about 5,000 years old that shows the combination of exercises like breathing, relaxation and meditation (www.introductiontoyoga.com). Pranayama is a kind of breathing exercise, it clear the physical and emotional obstacles from our body. Breath is an essential activity of our body to live. So we can live an active and happy life and it will happened only by daily practice of breath exercise. So Pranayama place an important role in our day to day life. (Khazaei, Ali Ashraf 2005). There are different techniques to do Pranayama first doing pranayama by sitting down with an upright spine like Padmasans. Other techniques of doing Pranayama are known as Kapalbhathi, Nadishodhan (Anulom – Vilom), Ujjayi and Bhastrika. (Esther Eckhart, 2014). In India the girls faces different difficult situation in their lives. They not only handle the pressure of society but also some physical changes. In the age of puberty many psychological and physical changes occurs in the body of girls. Due to these changes the girls take more stress and pressure in their mind. Yoga is the best way to release these stress and give them a healthy life. Practice of yoga and pranayama bring a great modification in their life (Barkha Bhardwaj)

Nadi Shodhan is also known as anulom-vilom pranayama. In nadi –shodhan "Nadi" refer to "pranic flow" and shodhan refer to "purification". So it is a practice through which our pranic channels are refined and get clean. In this practice we inhale air through our left nostril by putting our thumb on our right nostril for some time. After that we put our ring finger on our left nostril and release the air from our right nostril release air gently (yoga darshan). This exercise is performed by Ida and pingla nostril. This exercise increases our level to take and utilizes the oxygen into our body, helped to purify the blockage from vein and nostril. It also purifies our blood. It also helps to remove stress and anxiety from mind. It also clarifies the thought in our mind and increases the level of concentration in our mind. Through this pranayama we feel instantly experience peace and blissfulness.

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As thought we transported into a new world. It is said in the science of yoga Anlom-vilom pranayama cleanses 72,000 nadis or channels in the body. It helps to strengthen our respiratory system (Nahid, 2013).

Method and Procedure

In this experimental study, we study about pre and post experimental design. For this, purposive sampling technique was adopted. For the purpose of the study twenty four (24) school girls from Government High School Sarangpur,

Chandigarh was selected, divided into two groups' i.e. experimental group (12) and control group (12). The age of the students ranged from 14 to 15 years. The training programmed was scheduled for six weeks, 45 minute pranayama training for 5 days in a week. Experimental group were given a warm up session, in which the groups use to perform pre-yogic and yogic breathing exercise. All groups were pre and post tested on physiological variables (vital capacity, systolic blood pressure, diastolic blood pressure, breath hold capacity, resting pulse rate and respiratory rate).

Table 1: Criterion Measures

Variable	Test/Tool	Unit
Vital Capacity	Peak Flow Meter	Liter
Systolic Blood Pressure	Sphygmomanometer, Stethoscope	mmhg
Diastolic Blood Pressure	Sphygmomanometer, Stethoscope	mmhg
Breath Hold Capacity	Stop Watch	breath hold/min
Resting Pulse Rate	Stop Watch	Beats/min
Respiratory Rate	Stop Watch	Breath/min



Fig 1: Illustrations of Performing Anulom Vilom Pranayama



Fig 2: Illustrations of Measuring Peak Flow Meter, Blood Pressure and Measuring Breath Hold Capacity

Results and Findings

The data was analyzed by employing pair 't'-test. The comparison of initial and final scores on physiological

variables (vital capacity, systolic blood pressure, diastolic blood pressure, breath hold capacity, resting pulse rate and respiratory rate) for experimental group is presented in table-2.

Table 2: Comparison of pre and post test scores for Anulom-vilom group on the physiological variables of school girls

VARIABLE	GROUP	N	MEAN	SD	SE	MD	't'
Vital Capacity	Pre-Test	12	335.83	38.24	11.04	50.00	3.13*
	Post-Test	12	385.83	39.87	11.51		
Systolic Blood Pressure	Pre-Test	12	106.08	10.56	3.05	2.25	.616
	Post-Test	12	103.83	6.93	2.00		
Diastolic Blood Pressure	Pre-Test	12	67.75	8.57	2.47	.166	.060
	Post-Test	12	67.91	4.20	1.21		
Breath Hold Capacity	Pre-Test	12	34.25	10.07	2.90	30.00	3.263*
	Post-Test	12	64.25	30.21	8.72		
Resting Pulse Rate	Pre-Test	12	90.25	12.49	3.60	11.41	2.254*
	Post-Test	12	78.83	12.32	3.55		
Respiratory Rate	Pre-Test	12	18.58	6.08	1.75	5.91	2.416*
	Post-Test	12	12.66	5.91	1.70		

*Significant at 0.05 level
't' 0.05 (22) = 2.074

The comparison of Pres-test score and post-test score on physiological variables for control group is presented in table-3.

Table 3: Comparison of pre-test and post-test scores for control group on selected physiological variables of school girls

Variable	Group	N	Mean	SD	SE	MD	't'
Vital Capacity	Pre-Test	12	291.66	31.57	9.11	23.33	1.984
	Post-Test	12	315.00	25.76	7.43		
Systolic Blood Pressure	Pre-Test	12	118.41	7.166	2.068	.08	.033
	Post-Test	12	118.33	4.886	1.410		
Diastolic Blood Pressure	Pre-Test	12	67.83	8.06	2.32	2.50	.856
	Post-Test	12	70.33	6.11	1.76		
Breath Hold Capacity	Pre-Test	12	28.66	6.94	2.00	4.75	1.728
	Post-Test	12	33.41	6.51	1.88		
Resting Pulse Rate	Pre-Test	12	96.75	13.18	3.80	8.08	1.411
	Post-Test	12	88.66	14.83	4.28		
Respiratory Rate	Pre-Test	12	19.58	5.71	1.64	1.75	.715
	Post-Test	12	17.83	6.26	1.80		

*Significant at 0.05 level

't' _{0.05} (22) = 2.074

The analysis of pair 't'-test on school girls of Government High School Sarangpur, Chandigarh observed that there was significant found on vital capacity that result increases in expiratory reserve volume, the tidal volume and the expiratory reserve volume which lead to increase in oxygen supply in heart supported by Dhanvijay, *et al.* (2015) [3] study. It is well known that pranayama decrease blood pressure but in present study Anulom vilom pranayama training showed statistically insignificant, it may be because of student already lies in normal range of systolic and diastolic blood pressure prior before treatment so, it can say that Anulom vilom training module help in balance parasympathetic situation. The breath hold capacity found significant which means Anulom vilom training help in increases lung capacity, size of lung, lung efficiency lead better use of oxygen. Positively decrease resting pulse rate and respiratory rate as it was found statistically significant, which make balance between heart cell demand for oxygen and the heart ability to provide it, help in reduce stress, help protect heart disease. The present study was supported by Jainoddin (2015) [4], Bhadoria (2014) [2], Rayat (2015) [5], Abraham (2014) studies.

Conclusions

1. There were significant differences found on vital capacity, breath hold capacity, resting pulse rate and respiratory rate which revealed that there was a significant effect of six week Pranayama programme of Anulom Vilom among school girls. No significant difference found on blood pressure (systolic and diastolic).
2. The control group showed no significant differences found on physiological variables.

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