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## Effect of asana and pranayama on selected physiological variables of secondary school students

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### Abstract

The purpose of this study was to effectiveness of Asana and Pranayama on selected Physiological variables of Secondary School Students in Purba Medinipur district. Forty five male students of different secondary school of Purba Medinipur district were randomly selected as subject. The age group of the subjects range between 12-16 years. Blood pressure cardiovascular endurance, breath holding capacity and BMI were considered as the selected physiological variables for the study. To find out the differences between initial and final performance and to compare the achievements of three groups (two experimental and one control) the 't' test and analysis of (ANCOVA) was adopted. The level of significance was 0.05. The result showed that the experimental group A trained by Asana and Pranayama showed improvement though statistically no significant gain the performance. The experimental group B trained by Asana and Pranayama showed no significant differences in systolic and diastolic blood pressure cardiovascular endurance and body composition.

**Keywords:** Asana, Pranayama, Physiological variables

### 1. Introduction

Yoga is the art and science of living and is concerned with the evolution of mind and body. Therefore, yoga incorporates a system of disciplines for furthering an integrated development of all aspects of the individual. When we start the disciplines of yoga we usually begin with the outermost aspect of the physical personality, the physical body. Through the practice of the physical postures, or yoganās, the spinal column as well as the muscles and joints are maintained in a healthy and supple state. Subtle massage takes place at the location of different glands, balancing many physiological abnormalities such as hyperthyroid or hypothyroid problems, faulty insulin secretions, and other hormonal imbalances. Pranayama, or breathing techniques, are important not only for supplying fresh oxygen and strengthening the lungs but because they have a direct effect on the brain and emotions. The creative energies in a constructive way, and child exhibits more self-confidence, self-awareness and self-control.

As yoga's popularity grows, more and more avenues of this ancient practice are being explored. Yoga for student, quite a modern concept, grew out of parents, thinking their children could enjoy some of the benefits of yoga that adults do, such as, improved body awareness, co-ordination and stress relief. Traditional yoga practice is definitely a grown up activity, but yoga is flexible enough to accommodate young students as well, when the teaching is approached in the right way.

Such other forms of physical activity are very good and should be introduced, but they are not suitable for all students. However, even children with physical disabilities can participate in yoga exercises because they are not just fast, energy burning, muscle hardening exercises. They are movements and postures for stretching and toning the muscles, for creating flexibility within the skeletal system and they additionally affect the development and maintenance of healthy nervous and endocrinal system.

Yoga believes that the attitude towards circumstances of life has an important influence on the development of not only metabolic and other disorders but also of infectious ones. A disturbed mind lowers the ability of general resistance of the body and creates disintegration among various organs. As a result the body becomes prone to attacks by external organisms. A negative psycho-physiological disturbance alters the normal rate of circulation,

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respiration and metabolism. The process may affect the body as whole. Thus various internal organs such as intestine, heart, blood vessels, lungs, bronchioles may also be affected. All these changes may lead to the change in attitude and behavior of the student.

According to guidelines of the central board of secondary education childhood and albescence from the most joyful period an individual's life. They are times of immense energy, self discovery and exploration of world. They can also be fraught with feelings of isolation, loneliness and confusion. They can be due to various factors relating to physical, emotional, mental and responsible role in bringing up young children in a healthy environment which would enable each one to maximize their potential.

Schools can be dynamic settings for promoting health, for enabling children to grow and mature onto healthy adults. Yet the potential of the school to enhance health is often underutilized. "School Health" has largely remained confined to medical check ups of children or some hours of health instruction including yoga in the curriculum.

Yoga is a form of complete education that can be used with all students because it develops physiological variables and intellectual and creative talents. In this study a sincere effort has been made to investigate the effects of yogasana and pranayama on physiological variables of secondary school boys.

**Statement of the Problem**

The purpose of this study was to the effectiveness of Asana and Pranayama on selected physiological variable of secondary students.

**Methodology**

The objective of the study was to effectiveness of Asana and Pranayama on selected Physiological variables of Secondary School Students. The subjects for this study were 45 male students of different secondary school of Purba Medinipur district. The average age of the subjects was ranging from 12-16 years. Before administering the test the subjects were oriented regarding measurement of blood pressure, measurement of cardio vascular endurance, measurement of breath holding capacity and measurement of body composition. The assistants were also advised clearly regarding the test and handling of the equipments. The performance score by the subjects on the physiological

variables (blood pressure, cardiovascular endurance, breath holding capacity and body composition measurement) were considered as the criterion measures of the study. To find out the differences between initial and final performance and to compare the achievements of the three groups (two experimental and one control) the 't' test and analysis of covariance (ANCOVA) was adopted. The level of significance chosen was 0.05. The statistical analysis of data collected on 45 subjects belonging to two experimental groups and one control group, comprising 15 subjects each. Group A given the training on asana and pranayama for a period of six weeks on six days per week except Sunday. The group B has given the training on asana and pranayama for a period six week on alternative days three days per week. The group C served as the control. The data were examined by applying analysis of variance to fine out inter-group variability to allow for the comparison between pre-test and post test scores.

**Findings**

For each of the chosen variable the result pertaining to significant difference, if any, between the pre-test and post-test mean for the two groups after six weeks training period which submitted to analysis of variance are give in Table – 1 to 5.

**Table 1:** The schedule of Yogasana and Pranayam

Sl. No.	Assan	Time
1.	Tadasana	00:01 minute
2.	Paschimottanasana	00:02 minutes
3.	Dhanurasana	00:2 minutes
4.	Supata Vajrasana	00:02 minutes
5.	Sarvangasana	00:02 minutes
6.	Ardha Matsyendrasana	00:01 minute
7.	Halasana	00:02 minutes
8.	Chakrasana	00:02 minutes
9.	Shavasana	00:06 minutes

Total: 00:20 minutes

Sl. No.	Assan	Time
1.	Yogic Breathing	00:05 minutes
2.	Anulom-Vilom	00:05 minutes
3.	Bhastrika	00:04 minutes
4.	Sheetali	00:03 minutes
5.	Ujjayi	00:03 minutes

Total: 00:20 minutes

**Table 2:** Significance of difference between the pre-test and post-test of the Experimental Group and the control group in Blood Pressure.

Groups	Pre-Test mean	Post-Test mean	Difference between mean	SE <sub>MD</sub>	't' ratio
Experimental (Group-A)	112	113	1	3.71	0.26
Experimental (Group-B)	114	114.8	.8	2.09	0.38
Experimental (Group-C)	114.8	15	02	2.81	0.02

Significant at 0.05 level of confidence 't' 0.05(14df)=2.14

It is evident form the table-2 that Experimental group-A not improved significantly showing 't' value of 0.26 the Experimental group B also improved showing 't' value of

0.38 though statistically not significant. However, as table indicates no significant improvement was marked in case of control group.

**Table 3:** Significance of difference between the pre-test and post-test of the experimental group and the control group in Cardio Vascular Endurance.

Groups	Pre-Test mean	Post-Test mean	Difference between mean	SE <sub>MD</sub>	't' ratio
Experimental (Group-A)	68	70.04	2.4	2.76	0.86
Experimental (Group-B)	67.2	29.9	2.7	3.30	0.81
Experimental (Group-C)	60.4	60.5	0.1	4.57	0.02

Significant at 0.05 level of confidence 't' 0.05(14df)=2.14

It is evident from the table-3 that Experimental Group-A not improved significantly showing 't' value of 0.86 the Experimental Group B also improved showing 't' value of

0.81. However, as table indicates no significant improvement was marked in case of control group.

**Table 4:** Significance of difference between the pre-test and post-test of the experimental group and the control group in Breath Holding Capacity

Groups	Pre-Test mean	Post-Test mean	Difference between mean	SE <sub>MD</sub>	't' ratio
Experimental (Group-A)	47.4	56	8.6	1.78	4.83*
Experimental (Group-B)	47.26	49	1.74	2.53	0.68
Experimental (Group-C)	44.8	45.2	0.4	1.19	0.34

Significant at 0.05 level of confidence 't' 0.05(14df)=2.14

It is evident from the table-4 that Experimental Group-A not improved significantly showing 't' value of 4.83\* the Experimental Group B not improved showing 't' value of

0.68 statistically not significant. However, as table indicates no significant improvement was marked in case of control group.

**Table 5:** Significance of difference between the pre-test and post-test of the experimental group and the control group in Body Composition (BMI).

Groups	Pre-Test mean	Post-Test mean	Difference between mean	SE <sub>MD</sub>	't' ratio
Experimental (Group-A)	26.32	26.65	0.33	1.035	0.31
Experimental (Group-B)	25.61	25.88	0.27	1.19	0.22
Experimental (Group-C)	27.20	27.38	0.18	1.24	0.14

Significant at 0.05 level of confidence 't' 0.05(14df)=2.14

It is evident from the table-5 that Experimental Group-A not improved significantly showing 't' value of 0.31 the Experimental Group B not improved showing 't' value of 0.22 statistically not significant. However, as table indicates no significant improvement was marked in case of control group.

4. Similar study may be undertaken in selected physiological variables other than employed in this study.

### Discussion

The analysis of data indicates that the experimental groups A trained by Asana and Pranayama showed improvement though statistically no significant gain the performance. The experimental groups B trained by Asana and Pranayama showed no significant differences in systolic and diastolic blood pressure, cardio vascular endurance and body composition. In Table-4 group A trained by Asana and Pranayama showed significant gain the performance of breath holding capacity. The control group did not show any significant increase.

### Conclusion

On the basis of the analysis of the data's and within limitation imposed and the experimental conditions, the following conclusions may be drawn.

Asana and Pranayama proved to be effective in improving performance in breath holding capacity. In case of cardio-vascular endurance, blood pressure and body composition this are no effect.

### Recommendations

On the basis of the conclusions drawn, the following recommendation may be made.

1. Asana and Pranayama may be used by teacher of Physical Education and coaches for improving cardio-vascular endurance and breath holding capacity.
2. The present study may be replicated with subjects of age and sex other than those employed in this study.
3. Asana and Pranayama may be used physical education teacher and coaches for normalize the blood pressure and body composition.

1. Bhattacharya AK. Therapeutic dimension of physical education sports, 9, Radhanath Mallik Lane, Kolkata-12, 2009.
2. Roberts Shetty. Yoga clases for kids, Mexico, 2005.
3. Saraswati, Sami Satyananda. Yoga Education for children, Bihar School of yoga, Ganga Darsan, mugger, India, 2004.
4. Saraswati, Swami Satyananda. Yoga Education for Children, Bihar School of Yoga, Ganga Darshan, Munger, Bihar, India.
5. Singh Ajmer, Brains Jagadish, Gill JS. Essentials of Physical Education, Rajinder Nagar, Ludhiana. 2005.
6. Bera N Govindarajulu, Murugesan R. Work capacity of elite school players practicing yoga in Pondicherry Region. Yoga-Mimamasa. 2002.
7. Ganesh Kumar M. varied intensifies of bench step training on physiological variables. Journal of physical education and sports science. 2006, 001.
8. Gautam SK, Dwivedi AK. Effect of Yoga Education on Students. Journal of Sports and Sports Sciences. 2008.
9. Ghosh Asok Kurar. Physiological studies of Hatha Yoga. Somaych Sadat Tavafzadch, sport science unit. 2009.
10. Harber D. yoga as preventive health care program for white and black elders. Acta psiquiatr psicol Am Lat. 1975, 21.
11. Schell FJ, Allio B, Schonecke Ow. physiological and psychological effects of Hatha yoga exercise in healthy women. Dep. of internal medicine, University of Wurzburg, Germany, 1984.
12. Shirley Telles, Nagarathana R, Nagendra HR. Physiological Measures of Right Nostril Breathing Vivekananda Yoga Research Foundation, Bangalore, 2008.

13. Suberamaniam PK, Kavitha M. Effect of 12 weeks physical conditioning exercises program on student, Dept. of Physical Education, Pondicherry University, 2006.
14. Tran MD, Holly RG, LSHBROOK j, Amsterdam EA. Effects of hatha yoga practice on the health related aspects of physical fitness. Department of exercise science. University of California at Davis, Davis. 2007.