

11. Effects of 12 Weeks of Pranayama and Yogic Exercise Program on Selected Physiological Variables of College Men Students

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Abstract:

The purpose of the study was to find out the effect of 12 weeks of pranayama and yogic exercise program on selected physiological variables of college men students under the age groups 18-22 years. To achieve this purpose 40 college students were selected under the age group 18-22 from various colleges around Chidambaram. They were divided into two groups consisting of 20 subjects in each group. The experimental group alone received the pranayama and yogic exercises for 12 weeks. The control group would be not received any special training. All the subjects were tested in the selected variables, such as Systolic blood pressure, Diastolic blood pressure and Cardio-respiratory endurance before and after 12 weeks of pranayama and yogic exercise program. The data collected from the subjects would be statistically analyzed by using one way analysis of variance (ANOVA).

11.1 Introduction:

The word yoga automatically calls to mind Sage “Patanjali” the founder and father of Yoga. He lived around three centuries before Christ, and was a great philosopher and grammarian, he was also a physician and a medical work is attributed to him. Yoga is best known as a set of physical practices that include gentle stretches, breathing practices, and progressive deep relaxation. These physical practices are intended to ready the body and mind for meditation as well as for a meditative perspective on life. These meditative practices also follow a sequence.

First of all, it develops the capacity to withdraw the senses from focus on the outer world, then the capacity to concentrate on a meditative subject—a candle flame, a sacred or uplifting word or image or the movement of the breath.

The word yoga is derived from the Sanskrit root *yuj* meaning to bind, join, attach and yoke, to direct and concentrate one's attention on, to use and apply. It also means union or communion. According to Swami Satyanand Saraswathi "Yoga is not an ancient myth buried in oblivion. It is the most valuable inheritance of the present. It is the essential need of today and the culture of tomorrow".

Finally, and for most of us only occasionally, the concentration leads into a wordless experience of inner peace. The yoga describes various subtleties among these states of inner peace, but most of us, at best, achievements of this experience from time to time. Michael Lerner, "Choices in Healing".

Pranayama means voluntary regulation of breathing and the pranayama is an exercise of consciously-controlled rhythmic breathing involving timed breath-holding in each cycle of breathing, while the subject holds utmost attention and experiences the touch of inhaled air in the nasal passage.

11.1.1 Statement of The Problem:

The purpose of this study was to investigate the effect of 12 weeks pranayama and yogic exercise program on selected physiological variables of college men students of 18 to 22 years of age.

11.2 Methodology:

The subjects for this study were randomly selected from various colleges around Chidambaram. In total 40 college students were selected at random and they were divided into two equal groups that is experimental and control group in each group consist of 20 subjects their age ranged from eighteen to twenty-two.

The experimental group has undergone Pranayama (breathing techniques) such as Anulomevilom, Nadisuddhi, Ujjayi, Bhramari and Yoga asanas (Postures) such as Halasana(plough pose), Sarvangasana(inverted pose), Paschimothanasana(posterior stretching pose), Mayurasana(peacock pose), Vajrasana(pelvic pose), Gomukhasana(cow face pose), Bhujangasana(cobra pose), etc. five days in a week for the period of 12 weeks and the control group was not undergoing pranayama and yogic exercise program.

To find out the Systolic blood pressure, Diastolic blood pressure Cardio-respiratory endurance the investigator conducted the mercury manometer test readings and 1 mile walk/run test.

Testers' competency, subject reliability and reliability of tests were established by using test and retest method and the reliability coefficient were found to be satisfactory high.

The data were analyzed using one way analysis of variance (ANOVA) for determine the effect of 12 weeks pranayama and yogic exercise programme on selected physiological and variables of college men students.

11.2.1 Hypothesis:

- It was hypothesized that there would be significance difference due to influence of selected pranayama and yogic exercises on systolic blood pressure while comparing with control group.
- It was hypothesized that there would be significance difference due to influence of selected pranayama and yogic exercises on diastolic blood pressure while comparing with control group.
- It was hypothesized that there would be significance difference after 12 weeks of selected pranayama and yogic exercises cardio-respiratory endurance while comparing with control group.

11.2.2 Selection of Subjects:

For the purpose of these 40 college men students have been selected at random at various colleges around Chidambaram, on the age group between eighteen to twenty-two.

11.2.3 Selection of Variables and Tests:

The research scholar reviewed the available scientific literature pertaining to available the present study; the following physiological variables were selected.

Table 11.1: Selection of Variables and Tests

Sl. No.	Variables	Test Items
	Physiological Variables	
1.	Systolic Blood Pressure	Mercury manometer
2.	Diastolic Blood Pressure	Mercury manometer
3.	Cardio-Respiratory Endurance	1 mile walk/run test

11.2.4 Statistical Techniques:

The data collected from the experimental group and control group, the selected variables on Systolic blood pressure, Diastolic blood pressure and Cardio-respiratory endurance was statistically examined by using the “F” ratio used to find out the significance difference between experimental group and control group, the level of significance was fixed at 0.05 level of confidence.

The data collected from the subjects would be statistically analyzed by using one way analysis of variance (ANOVA).

11.3 Results and Discussion:

Within the limitations of study, the following conclusions appeared and justified as per the result obtained.

Table 11.2: One way analysis of variance (ANOVA) for pretest scores of 1 mile walk/run tests of control and experimental group.

Sources of variance	Sum of squares	Degrees of freedom	Mean squares	F
Between	525	1	525.65	
Within	244568.75	38	6436.0197	0.0817
Total	245094.37	39		

Table value of (1, 38) at 0.05 level is 4.10.

The calculated value of F ratio (0.0817) is lesser than the table value of 4.10 at 0.05 level. Hence it is not significant. Therefore, there is no statistically significance difference between control and experimental groups pretest scores of 1 mile walk/run tests.

Table 11.3: One way analysis of variance (ANOVA) for post test scores of 1 mile walk/run tests of control and experimental group.

Sources of variance	Sum of squares	Degrees of freedom	Mean squares	F
Between	36180.25	1	3610.225	
Within	214205	38	5636.98	6.4184
Total	250385.77	39		

Table value of (1, 38) at 0.05 level is 4.10.

The calculated value of F ratio (6.4184) is greater than the table value of 4.10 at 0.05 level. Hence it is significant. Therefore, there is a statistical significance difference between control and experimental groups post test scores of 1 mile walk/run tests.

Table 11.4: One way analysis of variance (ANOVA) for pretest scores of Systolic pressures of control and experimental group.

Sources of variance	Sum of squares	Degrees of freedom	Mean squares	F
Between	13.225	1	13.225	
Within	1177.15	38	30.9776	0.426
Total	1190.375	39		

Table value of (1, 38) at 0.05 level is 4.10.

The calculated value of F ratio (0.426) is lesser than the table value of 4.10 at 0.05 level. Hence it is not significant. Therefore, there is no statistical significance difference between control and experimental groups pretest scores of Systolic pressures.

Table 11.5: One way analysis of variance (ANOVA) for post test scores of Systolic pressures of control and experimental group.

Sources of variance	Sum of squares	Degrees of freedom	Mean squares	F
Between	184.9	1	184.9	
Within	1294.7	38	34.0711	5.429
Total	1479.6	39		

Table value of (1, 38) at 0.05 level is 4.10.

The calculated value of F ratio (5.429) is greater than the table value of 4.10 at 0.05 level. Hence it is significant. Therefore, there is a statistically significant difference between control and experimental groups posttest scores of Systolic pressures.

Table 11.6: One way analysis of variance (ANOVA) for pretest scores of Diastolic pressures of control and experimental group.

Sources of variance	Sum of squares	Degrees of freedom	Mean squares	F
Between	0.1	1	0.1	
Within	89.5	38	2.3553	0.0425
Total	89.6	39		

Table value of (1, 38) at 0.05 level is 4.10.

The calculated value of F ratio (0.0425) is lesser than the table value of 4.10 at 0.05 level. Hence it is not significant. Therefore, there is no statistical significant difference between control and experimental groups pretest scores of Diastolic pressures.

Table 11.7: One way analysis of variance (ANOVA) for posttest scores of Diastolic pressures of control and experimental group.

Sources of variance	Sum of squares	Degrees of freedom	Mean squares	F
Between	96.1	1	96.1	
Within	87.8	38	2.3105	41.5927
Total	188.9	39		

Table value of (1, 38) at 0.05 level is 4.10.

The calculated value of F ratio (41.5927) is lesser than the table value of 4.10 at 0.05 level. Hence it is significant. Therefore, there is a statistically significance difference between control and experimental groups posts test scores of Diastolic pressures.

11.3.1 Discussion:

The following studies were coinciding with the results of this study, so the conclusion is formatted with help of these studies. Vinayak.P. Doijad et. al., (2011)¹ conducted study to find effect of short-term Yoga practice on cardio-respiratory fitness.

This study results that Resting pulse rate, Respiratory rate and blood pressure was found to be decreased and 40mmHg endurance time found to be increased in both male and female subjects. They found out that yoga practice can be advocated to improve cardio-respiratory efficiency for patients as well as healthy adults. Dr. S. Manikandan, (2014)² conducted study on influence of yogic practices on selected physiological variables among Handball players.

The results of the study showed that there was a significant difference in cardio respiratory endurance and vital capacity between yogic practice group and control group and also there was a significant improvement on cardio respiratory endurance and vital capacity due to eight weeks of yogic practices. Indla Devasena et. al., (2011)³ found that systolic and diastolic blood pressure reduced significantly and the study shows that the yoga provides significant improvement in aging to reduce morbidity and mortality from cardiovascular diseases. Mrs. T. Sujatha et. al., (2014)⁴ aimed to find the influence of yoga on blood pressure and anxiety among adults with hypertension. They found that the Yog asanas were very simple and can be done in the home setup with the daily activities to decrease the blood pressure and anxiety to avoid blood pressure related complications.

11.4 Conclusion:

The finding of this study indicated that the 12 weeks of pranayama and yogic exercise program significantly increase the cardio-respiratory endurance when compared with pretest as well as control group. It was concluded that the systolic and diastolic pressure shows significant improvement changes due to regular practice of pranayama and yogasanas.

11.5 References:

1. Vinayak.P. Doijad, Anil.D. Surdi. Effect of short-term yoga practices on cardio-respiratory fitness parameters. *International Journal of Basic Medical Science*- November-2011, Vol: 2, Issue: 5, p286-290
2. Dr. S. Manikandan. Influences of yogic practices on selected physiological variables among handball players. *PARIPEX - INDIAN JOURNAL OF RESEARCH*, Volume: 3 | Issue: 12 | Dec 2014| p172-173
3. Indla Devasena*, Pandurang Narhare. Effect of yoga on heart rate and blood pressure and its clinical significance. *Int J Biol Med Res.* 2011; 2(3): 750-753
4. Mrs. T. Sujatha, Dr. A. Judie. Influence of Yoga on Blood Pressure and Anxiety Among Adults with Hypertension. *INDIAN JOURNAL OF APPLIE RESEARCH*, Volume: 4 | Issue: 7 | July 2014 | ISSN - 2249-555X, p387-390.