



## ANALYSE THE EFFECT OF EVERYDAY AND ALTERNATIVE DAYS YOGIC PRACTICE ON SELECTED PHYSIOLOGICAL VARIABLES OF UNIVERSITY FEMALE STUDENTS

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### Abstract

*For this study Forty five (45) Females were selected at random by lot sampling technique, from Pondicherry. Thirty (30) Female students were assigned as experimental groups and another fifteen (15) Female students were assigned as control group their age ranged from 20 to 25 years. The subjects selected for the present study were divided randomly into three equal groups called one control and two experimental, consisting of 15 Female students in each group. Twelve weeks of yogic practice were given to the experimental groups. The control group was not allowed to participate in any of the training programmes, except their routine work. The Computed 'F' value was 32.90 since the obtained 'F' value was greater than the required 'F' value of 3.23 at 0.05 level of Confidence with 2/41 degree of freedom. here was a significant difference among groups in systolic pressure. The Computed 'F' value was 1.69 since the obtain 'F' value was lesser than the required 'F' value of 3.23 at 0.05 level of Confidence with 2/41 degree of freedom. It was found to be insignificant difference among groups (Control, experimental I, experimental II) in diastolic pressure. The Computed 'F' value was 35.06. Since the obtained 'F' value was greater than the required 'F' value of 3.23 at 0.05 level of confidence with 2/41 degree of freedom. Hence we can conclude that there is a significant difference in respiratory rate due to yogic practice. The Computed 'F' value was greater than the required value of 3.23 at 0.05 level of confidence with 2/41 degree of freedom. There was significant difference among groups in pulse rate. Hence we concluded that yoga can improve the physiological variables like blood pressure, respiratory rate and pulse rate in females.*

**Keywords:** Yoga Asana, Pranayama, physiological variables, Blood pressure, Pulse rate, respiratory rate Female students. Physiological variables.

### INTRODUCTION

Yoga has roots in India. The foundational text for yoga is the *Yoga Sutras of Patanjali*. Yoga came to the attention of an educated western public in the mid 19th century along with other topics of Hindu philosophy. The first Hindu teacher to actively advocate and disseminate aspects of yoga to a western audience was Swami Vivekananda, who toured Europe and the United States in the 1890s (however, Vivekananda put little emphasis on the physical practices of Hatha Yoga in his teachings). Yoga as exercise is a modern phenomenon which has been influenced by the ancient Indian practice of Hatha yoga. It involves holding stretches as a kind of low-impact physical exercise, and is often used for therapeutic purposes. Yoga in this sense often occurs in a class and may involve meditation, imagery, breath work and music. Both the meditative and the exercise components of hatha yoga have been researched for both specific and non-specific fitness and health benefits. Hatha yoga has been studied as an intervention for many conditions, including back pain, stress, and depression. A survey released in December 2008 by the US National Center for Complementary and Integrative Health found that hatha

yoga was the sixth most common integrative health approach amongst adults in the United States during 2007, with an estimated six percent of the population participating. Hatha Yoga might help people with high blood pressure, overall this evidence is too weak for any recommendation to be made, and little is known of the safety implications of such an approach.

### HYPOTHESES

It was hypothesis that there would be a significance difference between the everyday and alternative day yogic asana and Pranayama practices.

It was hypothesis that there would be a significance difference in physiological variables of everyday and alternative day yogic practices groups then control group.

### DELIMITATION

- ❖ This study was delimited to forty five (45) Pondicherry Females.
- ❖ Forty five Females were selected for the study, of which fifteen was considered as the control group and the remaining thirty as the experimental group. The training was given for 12 weeks.

- ❖ The subject's age ranged between 20 to 25 years as per the birth certificate
- ❖ All of them are healthy and normal.

### LIMITATION

- ❖ The heredity and environmental factors which influence the criterion variables were recognized as limitations.
- ❖ The mood of the subjects which prevailed at the time of the training period also could not be controlled.
- ❖ The subject living condition, life style, diets, personal habits family heredity, motivational factor were not taken in to consideration for this study.
- ❖ The subject's social, economic and cultural background was not taken into considerations.

### METHODS

#### SELECTION OF SUBJECTS

In the present study, forty five (45) Females were selected at random by lot sampling technique, from Pondicherry. Thirty (30) Female students were assigned as experimental groups and another fifteen (15) Female students were assigned as control group their age ranged from 20 to 25 years. The investigator explained to them the purpose, nature, importance of the experiment and the procedure the role of the subjects during the experimentation and the testing procedure were also explained to them in detail. All the subjects were healthy and normal.

#### EXPERIMENTAL DESIGN AND PROCEDURE

The subjects selected for the present study were divided randomly into three equal groups called one control and two experimental, consisting of 15 Female students in each group. Twelve weeks of yogic practice were given to the experimental groups. The control group was not allowed to participate in any of the training programs, except their routine work.

### SELECTION OF VARIABLES

Sl.No	Test Name	Equipment	Scoring
1	Resting Respiratory Rate	A stop watch (1/100 <sup>th</sup> of second) and bed.	To record the number of respiration per minute.
2	Resting Pulse Rate	A stop watch (1/100 <sup>th</sup> of the second and chair)	Number of pulse per minute was recorded
3	Blood Pressure systolic and diastolic pressure	Sphygmomanometer & stethoscope.	The blood pressure in millimeters of mercury was recorded.(mm .Hg)

### ANALYSIS OF DATA AND RESULTS OF THE STUDY

The data of the above mention variables were collected prior to the training (pre test), after twelve

weeks of training (post test) the comparative effect of physiological variables were statistically examined by analysis of covariance (ANCOVA) and the results have been presented.

**TABLE – 1**  
**INITIAL AND FINAL TEST MEAN DIFFERENCE BETWEEN THE CONTROL AND EXPERIMENTAL GROUPS ON SYSTOLIC BLOOD PRESSURE**

Group	N	Mx	My	M.D
Control	15	115.47	115.27	0.2
Experimental – I(every day)	15	114.73	107.87	6.86
Experimental–I(alternateday)	15	114.73	110.60	4.13

Table – I indicates the mean difference between the initial and final scores among the control, experimental groups I and II on systolic blood pressure were 0.2, 6.86, and 4.13 respectively. The reduction in

experimental groups I and II could be due to the treatment effect and where as in the Control group there was almost no change.

**TABLE – 2**  
**ANALYSIS OF COVARIANCE OF THE SCORES OF CONTROL AND EXPERIMENTAL GROUPS ON**  
**SYSTOLIC BLOOD PRESSURE**

Sources of Variance	df	SSx	SSy	SSxy	SSyx	MSyx	'F' Value
Between	2	5.38	420.04	44.22	351.26	175.63	32.90*
Within	41	1311.80	1064.27	1053.06	218.88	5.34	
Total	43	1316.98	1484.31	1097.24	570.14		

Table value at 0.05 = 3.23

\* Significant at 0.05 level

Table – 2 indicates the 'F' test on systolic pressure. The Computed 'F' value was 32.90 since the obtained 'F' value was greater than the required 'F' value of 3.23 at 0.05 level of Confidence with 2/41 degree of freedom. It was found to be significant. So the null

hypothesis can be rejected with assurance. There was a significant difference among groups in systolic pressure. Hence Scheff's post Hoc test for ANACOVA was carried out and the results are presented in Table –3

**TABLE – 3**  
**POST HOC TEST AMONG THE CONTROL AND EXPERIMENTAL GROUPS BY ORDERED ADJUSTED**  
**MEANS AND DIFFERENCE BETWEEN MEAN ON SYSTOLIC BLOOD PRESSURE**

Control Group	Exp. I Group	Exp. II Group	MD	LS
114.87	108.06		6.81	0.05
114.87		110.80	4.08	0.05
	108.06	110.80	2.73	0.05

Confidence Interval at 0.05 = 2.27

Table – 3 indicated that the mean difference among Control group, experimental group I and experimental group II were 6.81, 4.08, 2.73 respectively. By comparing the above said groups with Scheffe's

confidence interval value at 0.05 levels was found significant. Hence we can conclude that there was a significant difference in systolic pressure due to yogic practice.

**TABLE – 4**  
**INITIAL AND FINAL TEST MEAN DIFFERENCE BETWEEN THE CONTROL AND EXPERIMENTAL**  
**GROUPS ON DIASTOLIC BLOOD PRESSURE**

Group	N	Mx	My	M.D
Control	15	72.60	72.60	0.00
Experimental I	15	71.67	71.07	0.6
Experimental II	15	74.20	74.00	0.2

Table – 4 indicates the mean difference between the initial and final scores among the Control, experimental I and II groups on diastolic blood pressure were 0.00, 0.6, and 0.2 respectively. The reduction in

experimental group I and II could be due to the treatment effect and where as in the Control group there is no change.

**TABLE – 5**  
**ANALYSIS OF VARIANCE OF THE INITIAL TEST SCORES OF CONTROL AND EXPERIMENTAL GROUPS**  
**ON DIASTOLIC BLOOD PRESSURE**

Sources of Variance	df	SSx	SSy	MSx	MSy	Fx	Fy
Between	2	49.24	64.58	24.62	32.29	0.70	0.87*
Within	42	1481.33	1552.53	35.27	36.97		
Total	44	1530.57	1617.11				

Table – 5 indicated the 'F' test on diastolic pressure. The computed 'F' ratio was 0.87, since the obtained 'F' ratio was lesser than the required value of 3.23 at 0.05 level of confidence with 2/42 degree of freedom. It was found to be insignificant difference

among groups (Control, experimental I, experimental II) in diastolic pressure. Since the 'F' ratio is insignificant post hoc test of significance is not carried out and hence the analysis of co-variance is applied and the results are presented in Table – 6.

**TABLE-6**  
**ANALYSIS OF COVARIANCE OF THE SCORES OF CONTROL AND EXPERIMENTAL GROUP**  
**ON DIASTOLIC BLOOD PRESSURE**

Sources of Variance	df	SSx	SSy	Ssxy	SSyx	Msyx	Fvalue
Between	2	49.24	64.58	55.51	2.62	1.31	1.69*
Within	41	1481.33	1552.53	1500.93	31.74	0.77	
Total	43	1530.57	1617.11	1556.44	34.36		

Table value at 0.05 level = 3.23

\* Insignificant at 0.05 level

Table –6 indicates, the ‘F’ test on diastolic pressure. The Computed ‘F’ value was 1.69 since the obtain ‘F’ value was lesser than the required ‘F’ value of 3.23 at 0.05 level of Confidence with 2/41 degree of freedom. It was found to be insignificant. So, the null

hypothesis is rejected. The Scheffe’s post hoc test for Anacova was not carried out due to insignificant difference among group in diastolic pressure. Hence we can conclude that there is no significant difference in diastolic pressure due to yogic training.

**TABLE – 7**  
**INITIAL AND FINAL TEST MEAN DIFFERENCE BETWEEN THE CONTROL AND EXPERIMENTAL**  
**GROUPS ON RESPIRATORY RATE**

Group	N	Mx	My	M.D
Control	15	20.33	20.13	0.2
Experimental I	15	20.00	16.73	3.27
Experimental II	15	18.67	16.60	2.07

Table –7 indicates that the mean difference between the initial and final scores among the Control, experimental I and II groups on respiratory rate, were 0.2, 3.27, 2.07 respectively. The reduction in

experimental I & II groups could be due to the treatment effect and where as in the Control group there is almost no change.

**TABLE –8**  
**ANALYSIS OF COVARIANCE OF THE SCORES OF CONTROL AND EXPERIMENTAL GROUPS ON**  
**RESPIRATORY RATE**

Sources of Variance	df	SSx	SSy	Ssxy	SSyx	Msyx	Fvalue
Between	2	23.33	120.31	36.00	73.06	36.53	35.06*
Within	41	216.67	224.27	198.33	42.72	1.04	
Total	43	240.00	344.58	234.33	115.78		

Table value at 0.05 level = 3.23

\* Significant at 0.05 level

Table – 8 indicates, the ‘F’ test on respiratory rate. The Computed ‘F’ value was 35.06. Since the obtained ‘F’ value was greater than the required ‘F’ value of 3.23 at 0.05 level of confidence with 2/41 degree of freedom. It was found to be significant, so the

null hypothesis can be rejected with assurance. There was significant difference among groups in respiratory rate. Hence Scheffe’s Post hoc test for Anacova was applied and the results are presented in Table-9.

**TABLE-9**  
**POST HOC TEST AMONG THE CONTROL AND EXPERIMENTAL GROUPS BY ORDERED ADJUSTED**  
**MEANS AND DIFFERENCE BETWEEN MEAN ON RESPIRATORY RATE**

Control Group	Exp. I Group	Exp. II Group	MD	LS
19.52	16.43		3.09	0.05
19.52		17.52	2.01	0.05
	16.43	17.52	1.09	0.05

**Confidence Interval at 0.05 = 0.98**

Table – 9 indicates that the mean difference among Control group, experimental group I and experimental group II were 3.09, 2.01, 1.09 respectively. By comparing the above said groups with Scheffe’s

Confident interval value at 0.05 levels was found significant. Hence we can conclude that there is a significant difference in respiratory rate due to yogic practice.

**TABLE –10**  
**INITIAL AND FINAL TEST MEAN DIFFERENCE BETWEEN THE CONTROL AND EXPERIMENTAL GROUPS ON PULSE RATE**

Group	N	Mx	My	M.D
Control	15	73.00	73.80	0.80
Experimental I	15	74.67	69.80	4.87
Experimental II	15	71.13	67.60	3.53

Table –10 indicates that the mean difference between the initial and final scores among the Control, experimental I and II groups on pulse rate were 0.80, 4.87, 3.53 respectively. The reduction in experimental I

& II groups could be due to the treatment effects and where as in the Control group there was almost no change.

**TABLE – 11**  
**ANALYSIS OF CO-VARIANCE OF THE SCORES OF CONTROL AND EXPERIMENTAL GROUPS ON PULSE RATE**

Sources of Variance	df	SSx	SSy	Ssxy	SSyx	Msyx	Fvalue
Between	2	93.73	296.40	63.40	269.59	134.80	29.41*
Within	41	739.07	1108.40	824.80	187.92	4.58	
Total	43	832.80	1404.80	888.20	457.54		

**Table value at 0.05 = 3.23**

**\* Significant at 0.05 level**

Table – 11 indicates that the 'F' test on pulse rate. The Computed 'F' value was greater than the required value of 3.23 at 0.05 level of confidence with 2/41 degree of freedom. It was found to be significant.

So, the null hypothesis can be rejected with assurance. There was significant difference among groups in pulse rate. Hence Scheffe's Post hoc test for Anocova was applied and the results are presented in Table – 12.

**TABLE – 12**  
**POST HOC TEST AMONG THE CONTROL AND EXPERIMENTAL GROUPS BY ORDERED ADJUSTED MEANS AND DIFFERENCE BETWEEN MEAN ON PULSE RATE**

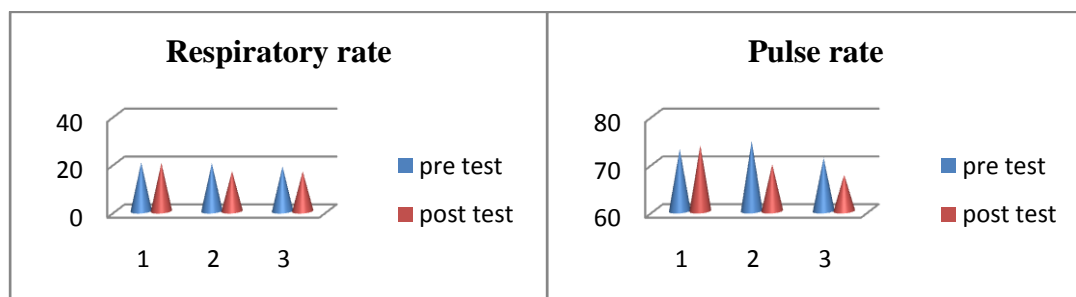
Control Group	Exp. I Group	Exp. II Group	MD	LS
73.73	67.87		5.86	0.05
73.73		69.61	4.12	0.05
	67.87	69.61	1.74	NS

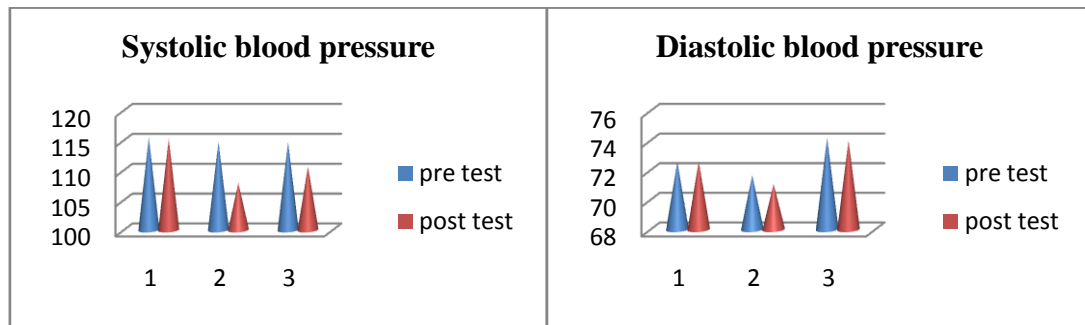
**Confidence interval at 0.05 level = 2.06**

Table –12 indicates that the mean difference among Control group, experimental group I and experimental group II were 5.86, 4.12, 1.74 respectively. By comparing the above said groups with Scheffe's

confidence interval value at 0.05 levels was found significant. Hence we can conclude that there is a significant difference in pulse rate due to yogic practice.

### GRAPHICAL REPRESENTATION





## DISCUSSION ON FINDINGS

The results of the study have been analyzed and discussed here. The purpose of this study was to investigate the influence of everyday and alternative day's yogic practice on selected cardio respiratory variables. For the sake of easy analysis, each of the variables is taken one by one and results have been discussed with it.

The result of the findings on Blood Pressure shows that there was a significant difference in systolic blood pressure variables due to yogic practice. When compared to alternative days yogic practice. The everyday practice group has a significant reduction in the systolic blood pressure variable. This may be due to the reason that the practice was given daily except on Sundays (i.e) 6 days per week. However the alternative practice group also shows some significant difference. But the diastolic blood pressure is considered to be abnormal and that is why there is no significant change in the diastolic variable since the entire subject who has undergone the training was normal.

The experimental groups I and II, shows a significant change in respiratory rate and pulse rate, and this could be due to the effect of yogic treatment. However, the respiratory rate variables shows a significant mean difference between everyday and alternative days practice groups, which means the everyday training has more effect on respiratory rate variable when compared to alternative days practice. Whereas the pulse rate variable shows no significant mean difference between the two experimental groups (i.e) the everyday training and alternative days yogic training has almost same effect on pulse rate variable.

## CONCLUSION

On the basis of the results obtained by statistical analysis on the effect of every day and alternative days yogic practice on selected cardio respiratory variables like systolic blood pressure, diastolic blood pressure, respiratory rate, and pulse rate. It may be concluded that, significant difference was found in systolic pressure variable due to everyday and alternative days yogic practice and alternative days yogic practice. In the scheffe's post hoc test of significance, it was found that a significant mean difference exist between every day and alternative days practice group. No significant was found in diastolic blood pressure variable due to yogic practice. In the case of respiratory rate variable, a significant

difference was found due to the Treatment effect. In the scheffe's post hoc test of significance, it was found that a significant mean difference exist between every day and alternative days practice group. Significant difference was found in pulse rate variable due to practice but in the scheffe's post hoc test of significance it was found to be insignificant in the mean difference between every day and alternative days yogic practice (i.e.) there is no difference exists in pulse rate variables between every day and alternative days practice. Both the groups have the same effect on pulse rate. Even though both the experimental groups shows a significant difference due to yogic practice but the mean score states that the everyday practice show better results when compared to alternative days yogic practice.

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