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EFFECT OF VARIED YOGIC PRACTICES ON RESTING PULSE RATE AND ANXIETY AMONG OBESE MEN

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ABSTRACT

The present investigation was to find out the effects of varied yogic practices on resting pulse rate and anxiety among obese men. 60 obese men age ranges from 25-45 years were selected as participants for the study, from Chennai district, Tamil Nadu. Subjects were divided into two experimental and one control groups of 20 each. Experimental group (I & II) underwent yogic practices for the period of 6 weeks, six days per week for the maximum of an hour in morning. The control group was not exposed to any specific training. The data pertaining to the variables collected from the three groups before and after the training period were statistically analyzed by using Analysis of Covariance (ANCOVA) to determine the significant difference and tested at 0.05 level of significance. p-value for the F-statistic was 0.00 which was less than 0.05, so of it was significant. , therefore a pair-wise comparison had been made. P-value for the mean difference between Asana group and Control group was 0.00 and Pranayama group and Control group was 0.00, all these p-values were less than 0.05 and hence they were significant at 5% level. Thus, it was concluded that yogic practices can help to decrease the Resting pulse rate and reduced level of Anxiety.

Key Words: *Yoga Training, Pulse rate, Nervousness & overweight Men.*

INTRODUCTION:

Within the last decade the number of individuals participating in yoga has greatly increased. Yoga began in India thousands of years ago. Yogic practices is the complete sadhana, spiritual practice; in itself for it includes asana, pranayama mantra and meditation techniques. Asana means holding the body in a particular posture to bring stability to the body and poise to the mind. Pranayama is the practice of breathing exercises in a progressive manner that works centrally and the effects spread to the periphery, too. There is a wealth of scientific research available confirming that advanced yogis have remarkable control over the functioning of their nervous system, heart and lungs. Researchers have shown that yoga practices may improve body composition (Bera & Rajapurkar, 1993; Raju, Prasad, Venkata, Murthy, & Reddy, 1997; Ray, Sinha, Tomer, Pathak,

Dasgupta, & Selvamurthy, 2001). Obesity is a medical condition in which excess body fat has accumulated to the extent. The obesity in general, it is a chronic condition defined by an excess amount body fat. Women with over 30% body fat and men with over 25% body fat are considered obese. Obesity men have high cholesterol deposit, more sweating, increased Resting Pulse Rate, blood pressure, etc., as well as psychological problems like Anxiety, Stress, Aggression etc.; as well as bio-chemical problems like cholesterol level etc. Thus the investigator had chosen these variables for the present study.

OBJECTIVE OF THE STUDY:

The present study was designed to find out the effects of varied yogic practices on resting pulse rate and anxiety among obese men.

Hypothesis:

It was hypothesized that there would be significant difference on resting pulse rate and anxiety among obese men due to influence of yogic practices.

METHODOLOGY:

In the present study, 60 obese men aged between 25 to 45 years were selected as subject through random sampling from Chennai district, in Tamil Nadu. The selected subjects were divided into equal groups of twenty subjects each. Such as Experimental group I (Asana Group), Experimental group II (Pranayama Group), and Control group (Control Group). Asana Group and Pranayama Group underwent Yoga practice for six days in a week for the maximum of Sixty minutes in the morning 7.00 am to 8.00 am for the period of six weeks. Experimental Group III (control group) was not exposed to any specific training but they participated in the regular activities.

Intervention:

Experimental group I act as asanas group, experimental group II acts as pranayama group and Experimental Group III acts as control group. The subjects of experimental group I practiced

asanas(SittingAadharasanas,Swastikasana,Vajrasana,Padmasana,Sputavajrasana,Matsayasa, Parvathasana,Pachimotanasana, Supine- Pawanmuktasana, Sarwangasana & Halasana, Prone Bhujangasana, salabhasana, Naukasana & Dhanurasana). Experimental group II practiced pranayama (Anulome-vilome, Bhramari, Kapalabhati, Sitalai & Sitakari). While administering the program care was taken to see that every subject performs the practice duration comfortably. Load intensity and volumes were kept widely flexible so that it remains within the range of every subject's accomplishment.

Selection of Variables:

1. Physiological Variable: Resting pulse rate
2. Psychological Variable: Anxiety

Collection of Data:

The subjects of the study were selected at randomly and divided into three homogeneous groups. Resting Pulse Rate: To record the heart rate, finger tips were placed on the radial artery at the subject's wrist in such a manner that palpation was clear and the number of palpation was counted for one minute. (Mathew, 1985). Anxiety: The Anxiety was measured through the Spielberger's Trait Anxiety questionnaire. It was developed by Spielberger's (1976). Twenty items were adopted from Spielberger's Trait Anxiety questionnaire for this investigation. Each statement consists of 4 responses; Not at all, Somewhat, Moderately so, Very much. The inventory in its original forms was made use of in this investigation. The responses were scored with the help of a scoring key. Score of positive statements {Not at all (1), Somewhat (2), Moderately so (3), Very much (4)}. Score of negative statements {Not at all (4), Somewhat (3), Moderately so (2), Very much (1)}. Positive Statements is 1,2,5,8,10,11,15,16,19,20 and Negative Statements 3,4,6,7,9,12,13,14,17,18. The total score constituted the psychological Anxiety score. The pre-test and post-test were conduct before and after the training for entire three groups. All the subjects of three groups were tested on Resting pulse rate and Anxiety at prior to and immediately after the training programme.

Statistical Procedure:

The data were statistically analyzed by using Analysis of Covariance (ANCOVA) to determine the significant difference and test was conducted using IBM SPSS-20 software .Level of significance was chosen 0.05.

RESULTS AND DISCUSSION:

Results on Resting Pulse Rate and Anxiety:

Table I

Descriptive statistics of the data measured in the Post testing

	Treatment group	Mean	Std. Deviation	N
Resting Pulse rate	Asana group	68.75	1.69	20
	Pranayama Group	70.55	2.06	20
	Control group	73.45	2.56	20
	Total	70.92	2.87	60
Anxiety	Asana group	35.35	2.41	20
	Pranayama group	34.65	2.44	20
	Control group	38.85	3.88	20
	Total	36.28	3.47	60

Table I, Indicates the values of descriptive statistics (Mean and Std. Deviation) of the data measured in the post testing of the experimental groups (Asanas group and Pranayama group) & control group for physiological variable of resting pulse rate and psychological variable of Anxiety.

Table II

Descriptive statistics of the data measured in the Post testing after adjustment with the initial difference

	Treatment group	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Resting Pulse rate	Asana group	69.14[a]	0.39	68.36	69.92
	Pranayama Group	70.23[a]	0.39	69.45	71.01
	Control group	73.39[a]	0.39	72.61	74.16
Anxiety	Asana group	35.04[a]	0.42	34.20	35.89
	Pranayama group	34.66[a]	0.42	33.82	35.51
	Control group	39.15[a]	0.42	38.30	39.99

a. Covariates appearing in the model are evaluated at the following values: Pre Resting pulse rate score = 72.30, Pre Anxiety score = 38.57.

Interpretation: Adjusted means and standard deviation for the data on Resting pulse rate and Anxiety of different groups during post training have been shown in Table II. May, note that these values are different from that of the unadjusted values shown in Table I. The advantage of using the ANCOVA is that the differences in the post-testing mean are compensated for the initial difference in the score. In other words, it may be said that the effect of covariate is eliminated in comparing the effectiveness of the treatment groups during post-testing.

Table III

ANCOVA table for the Post hoc-test data on Resting pulse rate and Anxiety

	Source	Sum of Squares	Df	Mean Square	F	Sig.
Resting Pulse	Pre_Resting[a]	125.37	1	125.37	42.24	0.00
	Treatment_Group	193.01	2	96.51	32.52	0.00

Rate						
	Error	166.20	56	2.97		
	Total	302235.00	60			
	Corrected Total	484.58	59			
	Pre_Anxiety[b]	267.84	1	267.84	75.32	0.00
Anxiety	Treatment	245.21	2	122.60	34.48	0.00
	Error	199.14	56	3.56		
	Total	79701.00	60			
	Corrected Total	712.18	59			

a. R Squared = .657 (Adjusted R Squared = .639) and b. R Squared = .720 (Adjusted R Squared = .705).

Table III, Indicates the values test of difference between the subjects effects, which shows that there was a significant difference in pre test values of resting pulse rate and anxiety for the three selected groups, as the value was found to be 42.24 (Resting pulse rate) and 75.32 (Anxiety) which proves to be the base of analysis of co-variance. Also, a significant difference was found between the post test values of the experimental and control group as the value was found to be 32.52(resting pulse rate) and 34.48(anxiety), which was significant at 0.05 level.

Interpretation: Table III, shows the F-value for comparing the adjusted means of the treatment groups during post-testing. Since p-value for the F-statistic is 0.00 which is less than 0.05, so of it is significant. Thus, the null hypothesis of no difference among the adjusted post-mean for the data on resting pulse rate in treatment groups may be rejected at 5% level. Since the F-ratio in the above mentioned table is significant, a pair-wise comparison has been made in Table IV.

Table IV

Post Hoc comparison for the group means in post-measurement adjusted with the initial differences

	(I) Treatment group	(J) Treatment group	Mean Difference (I-J)	Std. Error	Sig. (p-value)	95% Confidence Interval for Difference[b]	
						Lower Bound	Upper Bound
Resting pulse rate	**Asana group**	Pranayama Group	-1.09	0.56	0.06	-2.21	0.03
		Control group	**-4.25***	0.55	0.00	-5.35	-3.14
	Pranayama Group	Asana group	1.09	0.56	0.06	-0.03	2.21
		Control group	**-3.16***	0.55	0.00	-4.26	-2.06
	Control group	Asana group	4.25*	0.55	0.00	3.14	5.35
		Pranayama Group	3.16*	0.55	0.00	2.06	4.26
Anxiety	**Asana group**	Pranayama group	0.38	0.60	0.53	-0.82	1.58
		Control group	**-4.10***	0.6	0.00	-5.30	-2.90
	Pranayama group	Asana group	-0.38	0.60	0.53	-1.58	0.82
		Control group	**-4.48***	0.60	0.00	-5.68	-3.29
	Control group	Asana group	4.10*	0.6	0.00	2.90	5.30
		Pranayama group	4.48*	0.60	0.00	3.29	5.68

*. The mean difference is significant at the .05 level. Based on estimated marginal means Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Table IV, Indicates the values of post hoc test for the selected groups for Resting pulse rate, which shows that a significant difference was found between the post values of asanas group and the control group as the value was found to be 4.25 and Pranayama group and the control group as the value was found to be 3.16, which was significant at 0.05 level. As well as selected groups for Anxiety, which shows that a significant difference was found between the post values of asanas group and the control group as the value was found to be 4.10 and Pranayama group and the control group as the value was found to be 4.48, which was significant at 0.05 level.

Interpretation: Since, F-statistic is significant, post hoc comparison has been made for the adjusted mean of the treatment groups which is shown in Table IV. It may be noted here that p-value for the mean difference between Asana group and Control group is 0.00 and Pranayama group and Control group is 0.00, all these p-values are less than 0.05 and hence they are significant at 5% level.

Hence, it may be inferred that Asana and Pranayama are equally effective in decreasing the Resting pulse rate and Anxiety among the obese men in comparisons to that of the Control group. To control Resting pulse rate all the treatments proved to be effective as among all the Groups after treatment Resting pulse rate has shown downwards trends but Asana group was most effective as difference between Pre and Post test was 2.95, in case of Experimental group II which was under gone Pranayama training was less effective. Still difference between pre and post test was 2.25. likewise Anxiety has shown downwards trends but Pranayama group was most effective as difference between Pre and Post test was 3.9, in case of Experimental group I which was under gone Asana was less effective. Still difference between pre and post test was 3.65. This can be seen clearly in graphical representation that is Figure I & II.

Figure I

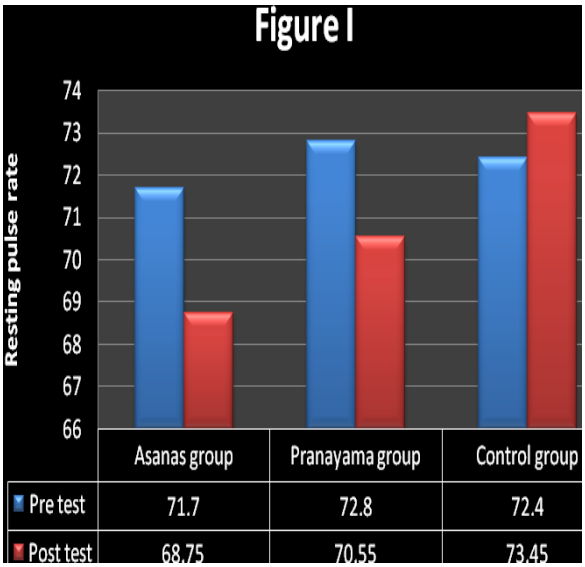
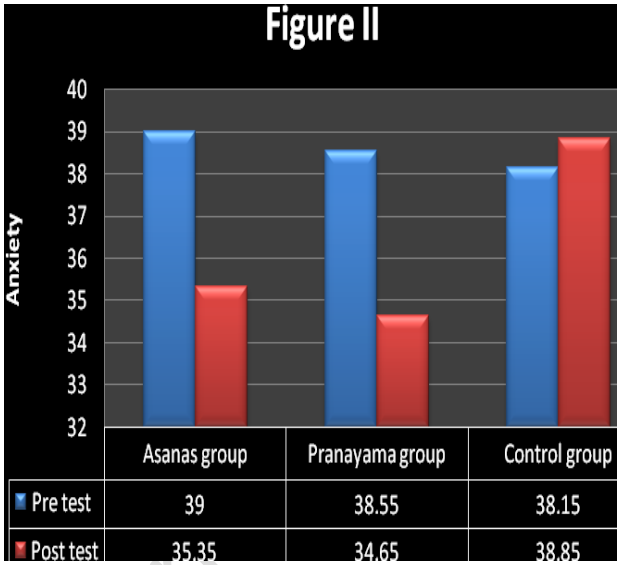


Figure II



DISCUSSION:

The aim of this study was to investigate the effects of varied yogic practices on resting pulse rate and anxiety among obese men. In this study, Resting pulse rate and Anxiety of the intervention group was decreased. There was a significant difference in Resting pulse rate and Anxiety between baseline and post treatment tests, after 6 weeks. Also this findings shows that the yogic practices can have a significant effect on the decrease of Resting pulse rate and Anxiety in obese men. The findings of the study are in agreement with the findings of *Lohan and rajesh (2002), Mohan (2003),* who proved Physiological Variables, could be improved through yogic exercise. The results by and large were in conformity with the findings of *Oak and Bhole (1984), Joshi and Pansare (1986).* The group of asanas and pranayama showed significant improvement in the physical and physiological fitness parameters. *Krishnakanthan S. (1996),* concluded that the training effects of Pranayama were significantly greater than that of running with respect to respiratory rate, pulse rate and anxiety level all of which have health orientation. *Kochar, H.C. (1972),* reported that Yoga practices considerable reduced the anxiety level. The findings of present study confirm the

previous studies and shows that yogic practices can decrease the Resting pulse rate and Anxiety of obese men.

CONCLUSION:

Within the limitations and delimitations of the study, the following conclusions were drawn: 1. Physiological variable, Resting pulse rate was significantly reduced due to the yoga practices among obese men, than the control group, 2. Psychological variable, Anxiety was significantly reduced due to the yoga practices among obese men and improved their psychological conditions than the control group . It was concluded that Asana practices was most effective to reduced resting pulse rate and Pranayama practices was most suitable for decreasing the level of anxiety of obese men.

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