

Response of Relaxation Techniques in Different Modes on Selected Physiological Variables for Female Students

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Abstract

To understand the response of relaxation techniques in different modes, on selected physiological variables for female students. To fulfil the purpose of study, 80 female students of Vellore District in Tamilnadu were selected from the age group of 18 to 23 years who agreed to participate in the study. They were not previously exposed to any regular Relaxation Techniques. They were randomly selected and assigned four equal groups namely Experimental Group I, Experimental Group II, Experimental Group III and Control Group, for the period of 6 weeks. The pre and post test scores were collected using the standard methods, to assess the selected physiological variables Mean Arterial Pressure, Haemoglobin, and Resting heart rate. The relaxation techniques for experimental groups like mahakriya, healing techniques and energy therapy were more appropriate for the subjects for 6 weeks. All the experimental groups involved same overall volume of training as measured by time with variation based on individual capacity. The data collected prior to and after training in the selected dependent variables were statistical analysed by analysis of covariance (ANACOVA) as recommended by Clarke and Clarke (1972). The level of significance was fixed as 0.05, which was considered as appropriate. To verify the significant difference between the paired adjusted post-test means, the Newman Keuls post hoc test was applied.

KEYWORDS: Relaxation Technique, Pressure, Haemoglobin, Meditation, Healing techniques, Treatment

INTRODUCTION

Relaxation is a technique often used by female students to calm themselves-thereby decreasing anxiety and controlling arousal. It can increase the sense of control, reduce anxiety, and help the performer to feel calm and comfortable.

Our fast-paced society can cause people to push their minds and bodies to the limit, often at the expense of physical and mental wellbeing. According to the mind/body medical institute at Harvard University, 60 - 90% of all medical office visits in the United States are for stress related disorders. Such stress has damaging effects on health and the immune system. Relaxation techniques are helpful tools for coping with stress and promoting long-term health by slowing down the body and quieting the mind.

One of the most difficult obstacles to overcome among people who strive to improve their sports performance is that of anxiety. Anxiety becomes even more of an

obstacle to attaining optimal performance in the concentration-intensive sports.

MahaYogam

MahaYogam is a valuable treasure blessed with saint Mahamaharishi's dynamic energy and Guruji's kindness for the peace and joy of people in the world. MahaKriya is a breathing practice. Human body has an energy called prana in breath which is the source energy for the body movement and mental function. If prana decreases then it leads to diseases. Alternatively all body and mind related diseases will vanish, if you know the secret of taking prana from air and storing it in your body. Then your body will be suitable for all natural environments. Blood will be purified, blood flow will be regulated, with no Cholesterol in the blood; the Heart movement will be normal.

Meditation is nothing but achieve complete relaxation of mind. Both body and mind together must be relaxed. Total relaxation is meditation. Three factors are essential in order to set the mind to retire.

- Body should be relaxed
- Nerves should get energized for the brain to relax.
- Then the mind will set to retire

In general we get energy through food, sleep, air and water. Sometimes we end up in situations where we could not make decision for problems, which results in anger, loss of temper and mental stress. Meditation is the only way to get rapid power and to keep the situation under control.

Healing techniques- Vethathirin Maharishi Spiritual School of Meditation

The words meditation and medicine are derived from the same root- latin word mediterere - which means 'to heal not only the body but also the mind'. When we meditate deeply, horns the spiritual antennas will grow on our heads. By doing simple meditation of simplified kundalini yoga developed by vethathiri maharishi of south india, it is easy to develop these spiritual antennas. In this meditation agna chakra and visuddhi chakra are very important energy centres'. Agna chakra is really the Gate of God for if we go in we will attain the higher consciousness. Visuddhi chakra is important because it is the purifier and amplifier of cosmic energies in the body.

The Healing Techniques of the South Indian saints and their special features; the healing technique is not symptom oriented, but root-cause oriented. The healing energy has its own intelligence and it has no dice effects. Adisankara calls this healing energy as chaitanyalahiri and the scientists of Russia call it bio plasma.

Reiki Treatment

The system of Reiki was developed by Mikao Usui in 1922 and founded the "Usui's

spiritual energy therapy method society" in order to continue treating people on a large scale with Reiki.

Reiki is a form of complementary natural healing, which enhances the body's ability to heal itself by tapping into the universal life force energy. Reiki can help to greatly reduce alleviate chronic pain and stress which is a leading cause of disease and illnesses.

Reiki can help you achieve complete wellness by addressing the physical, mental and emotional issues that can be holding you back from achieving perfect health of mind. Reiki is described by adherents as a holistic therapy which brings about healing on physical, mental, emotional and spiritual levels.

METHODOLOGY

To understand the response of relaxation techniques in different modes, on selected physiological variables for female students. Eighty female students of vellore district in tamilnadu were selected from the age group of 18 to 23 years who agreed to participate in the study. They were not previously exposed to any regular relaxation techniques. They were randomly selected and assigned four equal groups namely mahakriya- Experimental Group I, Healing techniques -Experimental Group II, Energy Therapy - Experimental Group III and Control Group, for the period of 6 weeks. The pre and post test scores were collected using the standard methods, to assess the selected physiological variables Mean Arterial Pressure, Haemoglobin, Red blood cell and Resting heart rate.

Relaxation Techniques

The RT experimental groups like Mahakriya, Healing techniques and Energy Therapy were more appropriate for the subjects for 6 weeks daily except Sunday. The weekly Relaxation Techniques time increased 5 min of every week, from 25 min at the beginning to 60 min during the last week for experimental groups.

Subjects performed the RT program activities with a gradual progressive increase based on time for the experimental groups. All the experimental groups involved same overall volume of training as measured by time with variation based on individual capacity.

The data collected prior to and after training in the selected dependent variables were statistical analysed by analysis of covariance (ANACOVA) as recommended by Clarke and Clarke (1972). The level of significance was fixed as 0.05, which was considered as appropriate. To verify the significant difference between the paired adjusted post-test means, the Newman Keul's post hoc test was applied.

RESULTS

The obtained results are presented below:

TABLE I: The Mean, Standard Deviation and Mean Difference for the Pre and Post Test of the selected variables for the Groups

Variables	Groups	Pre Test		Post Test		Mean Difference
		MEAN	SD	MEAN	SD	
Mean arterial pressure (mm hg)	Exp Group I	90.88	7.40	90.21	5.22	-0.67
	Exp Group II	90.22	7.11	89.55	5.32	-0.67
	Exp Group III	91.43	6.76	90.45	4.77	-0.99
	Control	89.07	6.12	88.99	6.24	-0.08
Haemoglobin (g/dl)	Exp Group I	11.65	0.94	13.25	1.12	1.60
	Exp Group II	11.67	1.05	12.69	0.99	1.02
	Exp Group III	11.36	0.92	11.88	0.91	0.52
	Control	12.07	1.07	12.18	0.95	0.11
Red blood cell (millions/cumm)	Exp Group I	4.03	0.31	4.96	0.34	0.92
	Exp Group II	4.16	0.37	4.85	0.40	0.69
	Exp Group III	4.07	0.33	4.94	0.40	0.88
	Control	3.96	0.18	3.98	0.18	0.02
Resting Heart Rate (minute/beat)	Exp Group I	81.05	3.32	76.70	2.90	-4.35
	Exp Group II	80.85	3.34	77.85	3.00	-3.00
	Exp Group III	80.75	3.46	78.30	3.44	-2.45
	Control	81.65	3.87	81.50	3.58	-0.15

In Table I the Mean, Standard Deviation and Mean Difference for the pre and post test scores of Mean arterial pressure, Haemoglobin, Red blood cell and Resting Heart Rate for the three experimental and control groups were presented from.

The reduction in the mean values of three experimental groups indicates that there was treatment effect of all groups in the Mean Arterial Pressure and Resting Heart Rate.

The increase in the mean values of three experimental groups indicates that there was treatment effect on all groups in the Haemoglobin and Red blood cell.

TABLE II: Analysis of Variance for the Pre and Post Test Data among Relaxation strategies of Experimental Group I, Experimental Group II, Experimental Group III and Control Group

Analysis of variance			Mean Arterial Pressure (mm hg)			Haemoglobin (g/dl)			Red Blood Cell (millions/cumm)			Resting Heart Rate (minute/beat)		
Period	Source	df	SS	MS	F Ratio	SS	MS	F Ratio	SS	MS	F Ratio	SS	MS	F Ratio
Pre test	Between	3	62.15	20.72		5.17	1.72		0.4	0.13		9.75	3.25	
	Within	76	3580.3	47.11	0.4	76.06	1	1.7	7.12	0.09	1.4	933.80	12.29	0.3
Post test	Between	3	26.18	8.73		21.71	7.24		13.21	4.4		253.44	84.48	
	Within	76	2226.2	29.29	0.3	75.65	1	7.30*	8.88	0.12	37.70*	797.95	10.50	8.0*

Table F (0.05) (3,76) = 2.73

* Significant at 0.05 level

In Table II the Analysis of variance for the pre and post test data of Mean arterial pressure, Haemoglobin, Red blood cell and Resting Heart Rate among the three experimental and control groups were presented. The obtained pre-test F ratio of 0.4, 1.7, 1.4 and 0.3 for Mean arterial pressure, Haemoglobin, Red blood cell and Resting Heart Rate among the four groups was less than the required table value of 2.73 at 3 and 76 degrees of freedom for 0.05 level of significance, implying that random assignment was successful.

The obtained post-test F ratio of 0.3 for Mean arterial pressure among the four groups was less than the required table value of 2.73 at 3 and 76 degrees of freedom for 0.05 level of significance. This revealed that there was no significant variation among the post-test means for Mean arterial pressure to RT. The obtained post-test F ratio of 7.3, 37.7 and 8.0 for Haemoglobin, Red blood cell and Resting Heart Rate among the four groups was more than the required table value of 2.73 at 3 and 76 degrees of freedom for 0.05 level of significance. This revealed that there was significant variation among the post-test means for Haemoglobin, Red blood cell and Resting Heart Rate to RT.

The sums of squares, mean squares, the adjusted sum of squares and mean squares values for between and within sets along with the F ratio for selected dependent variables among the four groups are presented in Table III.

Table III: Analysis of Covariance and F Ratio for the Differences among the Final Adjusted Sum of Squares for selected dependent variables among Four Groups

VARIABLES	Source of Variance	df	SSx	SSy	Sxy	SSy.x	MSy.x	F
Mean Arterial Pressure (mm hg)	Between	3	62.15	26.18	39.88	0.91	0.3	0.06
	Within	75	3580.35	2226.25	2553.44	405.18	5.4	
Haemoglobin (g/dl)	Between	3	5.17	21.71	1.05	23.92	7.97	47.31*
	Within	75	76.06	75.65	69.23	12.64	0.17	
Red Blood Cell (millions/cumm)	Between	3	0.4	13.21	1.55	10.48	3.49	96.60*
	Within	75	7.12	8.88	6.63	2.71	0.04	
Resting Heart Rate	Between	3	9.75	253.44	39.63	190.02	63.34	68.51*
	Within	75	933.80	797.95	824.85	69.34	0.92	

Table F (0.05) (3,75) = 2.73

* Significant at 0.05 level

The obtained Mean Arterial Pressure variable F value of 0.06 for the final adjusted mean was less than the required value of 2.73 at 3 and 75 degrees of freedom at 0.05 level of significance. Hence the null hypothesis was accepted.

The obtained Haemoglobin, Red blood cell and Resting Heart Rate variables F value of 47.31, 96.6 and 68.51 respectively for the final adjusted mean were higher than the required value of 2.73 at 3 and 75 degrees of freedom at 0.05 level of significance. Hence the null hypothesis was rejected. Since the obtained F value was significant, the data were further subjected to statistical treatment using Newman-Keul's post-hoc test for Haemoglobin, Red blood cell and Resting Heart Rate variables of the four groups and the results are presented in Table IV.

TABLE IV: Newman-Keuls Post Hoc Test of Significance for the Four Groups

Mean values of Haemoglobin					Mean values of Red blood cell					Mean values of Resting Heart Rate				
Exp group I	Exp group II	Exp group III	Control group	Mean Difference	Exp group I	Exp group III	Exp group II	Control group	Mean Difference	Control group	Exp group III	Exp group II	Exp group I	Mean Difference
13.28	12.7	--	--	0.58*	4.98	4.93	--	--	0.05	80.99	78.59	--	--	2.40*
13.28	--	12.18	--	1.10*	4.98	--	4.75	--	0.23*	80.99	--	78.05	--	2.94*
13.28	--	--	11.83	1.45*	4.98	--	--	4.07	0.91*	80.99	--	--	76.72	4.27*
--	12.7	12.18	--	0.52*	--	4.93	4.75	--	0.18*	--	78.59	78.05	--	0.54
--	12.7	--	11.83	0.87*	--	4.93	--	4.07	0.86*	--	78.59	--	76.72	1.87*
--	--	12.18	11.83	0.35*	--	--	4.75	4.07	0.68*	--	--	78.05	76.72	1.33*
SSR (0.05): $W_2 = 0.26$; $W_3 = 0.31$; $W_4 = 0.34$					SSR (0.05): $W_2 = 0.12$; $W_3 = 0.14$; $W_4 = 0.15$					SSR (0.05): $W_2 = 0.61$; $W_3 = 0.73$; $W_4 = 0.80$				

* Significant at 0.05 level

Ordered adjusted post-test mean differences for W_4

There was a significantly greater mean difference in the ($p < 0.05$) Haemoglobin between Experimental group I and the control group was 1.45. There was a significantly greater mean difference in the ($p < 0.05$) Red blood cell between Experimental group I and the control group was 0.91. There was a significantly greater mean difference in the ($p < 0.05$) Resting Heart Rate between Experimental group I and the control group was 4.27 as can be seen from table IV.

The effect of RT induced changes in Haemoglobin is graphically depicted in figure-I, the effect of RT induced changes in Red blood cell is graphically depicted in figure-II and the effect of RT induced changes in Resting Heart Rate is graphically depicted in figure-III.

Figure-I The Adjusted Mean Values of Haemoglobin

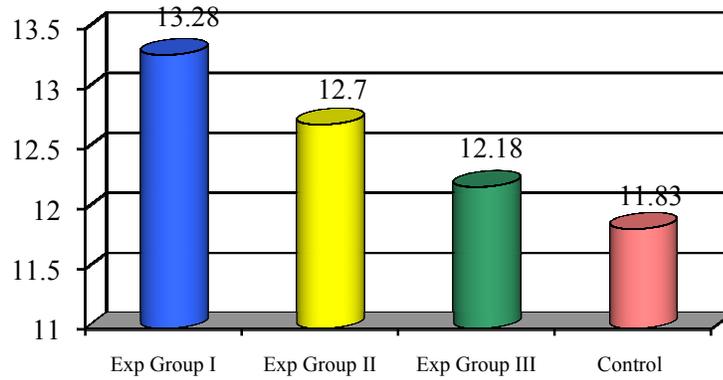


Figure-II The Adjusted Mean Values of Red Blood Cell

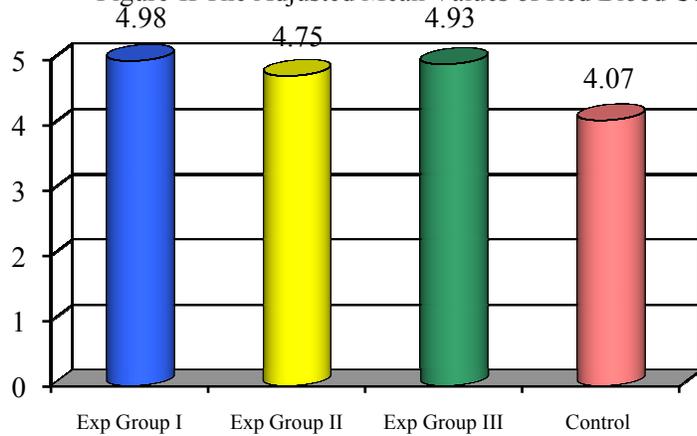
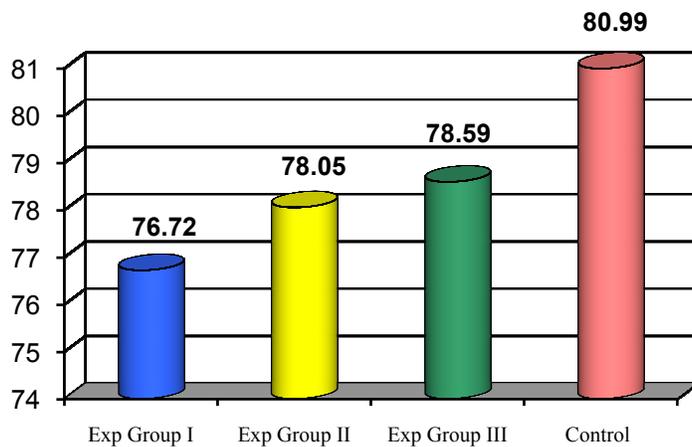


Figure-III The Adjusted Mean Values of Resting Heart Rate



DISCUSSION

The purpose of the present study was to investigate the effects of different modes in Relaxation Techniques on selected physiological variables for female students. Based on the limitations and delimitation of the study the obtained results are discussed below.

Mean Arterial Pressure

The pre and post-test values in mean arterial pressure was subjected to statistical analysis through ANACOVA and the obtained F ratio was less than the required value and hence it was not significant ($p > 0.05$) as can be seen from table III. The finding of this study is similar the studied by Underhayet.al., (2002) who was reported that there is no significant difference in mean arterial pressure.

Haemoglobin

The present mean difference in haemoglobin content between the adjusted post-test mean scores of Experimental group I with control group & Experimental group III, Experimental group II with control group were 1.45,1.10 and 0.87 respectively and were significant ($p < 0.05$) as can be seen from table IV. The result of the present study is in the accordance with the studies conducted by Willis and Horning (2001) who have documented effects of training were significant for Haemoglobin.

Red Blood Cell

The mean difference in red blood cell between the adjusted post-test means scores of Experimental group I, Experimental group II and Experimental group III with the control group were 0.91, 0.86 and 0.68 respectively and were significant ($p < 0.05$). This shows that Experimental group I group had the highest increase in red blood cell count when compared to Experimental group III, Experimental group II and control group. Whereas the Experimental group III with Experimental group I group (0.05) was not significant ($p > 0.05$) as can be seen from table IV. Schmidt et. al.,(1988) reported that there was an increase the red cell volume with effect of training. In the present study also similar results were obtained due to Relaxation Techniques showed significant increase in red blood cell count.

Resting Heart Rate

The mean difference in resting heart rate between the adjusted post-test mean scores of Experimental group I, Experimental group II and Experimental group III with the control group were 4.27, 2.94 and 2.40 with percent decrease of 5.57, 3.77 and 2.56 respectively and were significant ($p < 0.05$). This suggests that Experimental group I, Experimental group II RT showed the maximum decrease in resting heart rate when compared to Experimental group III and control group. However, the mean difference decrease of 0.69% between the adjusted post test scores of Experimental group II and Experimental group III was not significant ($p > 0.05$) (Table IV).In a study conducted by Ziembra et al.(2003), the RT induced a significant decrease in resting minute ventilation and HR decreased ($p < 0.05$).

CONCLUSIONS

The following conclusions were drawn from the results of the study.

1. The RT experimental groups resulted decrease in the Mean Arterial Pressure when compared to the control group. The Energy Therapy-Experimental group III (0.99) resulted in a greater mean difference between pre and posttest than theMahaKriya-Experimental group I (0.67) andHealing Techniques- Experimental group II (0.67) groups.
2. Due to the RT, experimental groups showed higher increase in the Haemoglobin when compared to the control group. In the experimental group the maximum gain mean difference between pre and posttest was obtained in theMahaKriya-Experimental group I group (1.60) than the Healing Techniques- Experimental group II (1.02) andEnergy Therapy-Experimental group III group (0.52).
3. The RT experimental groups showed effectively increase in the Red blood cell values when compared to the control group. In the experimental group the maximum gain mean difference between pre and posttest was obtained in the MahaKriya-Experimental group I group (0.92) than the Energy Therapy -Experimental group III (0.88) and Healing Techniques -Experimental group II group (0.69).
4. The RT experimental groups resulted reduces in the Resting Heart Rate. When compared to the Healing Techniques -Experimental group II (3.00) and Energy Therapy-Experimental group III (2.45) with maximum decrease mean difference between pre and posttest in the MahaKriya- Experimental group I group (4.35).

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