Effect of Age on Response of 61-Point Relaxation Technique on Cardiovascular variables in Females

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Abstract**—***Stress affects mainly on autonomic nervous system of individuals and relaxation techniques has the opposite of the stress response.* 61-point *relaxation technique is one of the relaxation techniques but there are some factors on which its grading of response is dependent. So this study is aimed to find out the effect of age on response of* 61-point *relaxation technique on cardio-vascular variables. Study was conducted on 30 healthy females of equals to or less than 30 years and 30 healthy females of more than 30 years. Before and after relaxation technique data regarding systolic blood pressure (SBP), diastolic blood pressure (DBP), Heart rate (HR) and respiratory rate (RR) were recorded. Significance of difference in means of baseline and end line data SBP, DBP, HR and RR of both the groups were inferred by unpaired 't' test. It was found that there was significant reduction of SBP, DBP, HR and RR in both the groups but significant difference in reduction was observed only in SBP and RR not in DBP and HR. Reduction in SBP was significantly more in more than 30 years than the other group whereas reduction in RR was just reverse.*

Keywords— 61- Point Relaxation Training, Systolic Blood Pressure (SBP), Diastolic Blood Pressure (DBP), Heart Rate (HR) and Respiratory Rate (RR)

1. Introduction

Nowadays psychosomatic diseases are on increase where stress is main predisposing factor. Stress disturbs the balance of two arms of autonomic nervous system - sympathetic & para sympathetic system[1]. Relaxation has the opposite of the stress response [2]. Physical and mental relaxation, as achieved during relaxation techniques, has physiological effects such as an increase in EEG alpha activity, reduction in respiratory rate, oxygen consumption, arterial lactate levels and other sympathetic activity.[1,3,4]

The ancient yogic scriptures write about many variants of relaxation technique. Among these the SHAVASANA is a well established technique of yoga to relax the body & mind[5]. 61-point relaxation technique is one of these relaxation techniques which also called *Shava-yatra* or *Shavashana* because in this exercise one moves from the *shthula sharira* (the physical body) to the *sukshma sharira* (the subtle body). In 61-point relaxations focus is given to 61 major energy points in the body. It is a guided relaxation technique in which a person is directed to pay attention to specific key points in the body & calm them down so that whole body is completely relaxed.[1,6,7,]

Systolic blood pressure, diastolic blood pressure, heart rate & respiratory rate are most significant parameters to assess autonomic nervous system[8]. But some factors inhibit the effect of these relaxation techniques. So this study is aimed to find out the effect of age on response of 61-point relaxation technique.

2. Methodology

An interventional study was conducted in the Upgraded department of Physiology, SMS Medical College, Jaipur in years 2012. This study after taking written informed consent was conducted on 30 healthy females of equals to or less than 30 years were taken and for comparison 30 healthy females of more than 30 years were taken after excluding females having any type of illness or not able to follow the command. These subjects were asked to report in department of Physiology in the morning 9-10 AM on next day. Room temperature was maintained in thermo neutral zone (22^0-27^0C). Baseline data regarding systolic blood pressure (SBP), diastolic blood pressure (DBP), Heart rate (HR) and respiratory rate (RR) were recorded after having socio-demographic details. BP was measured by automated sphygmomanometer (Panasonic). Both the groups were given 61-point relaxation technique separately. Then after 5 minutes of this technique again end line data SBP, DBP, HR and RR were recorded.

61 point relaxation technique: Subjects were made to lie down in supine posture. The feet were kept about a foot apart with palms facing up. A small pillow was allowed to be used under the head if desired. Eyes should be closed. Then commands were given to relax over few 15-20 minutes. Concentrate for few seconds upon the narrated 61- points. Then subjects were asked to become aware of the surroundings and gradually open the eyes.

Statistical Analysis: Significance of difference in means of baseline and end line data SBP, DBP, HR and RR were inferred by unpaired't' test with the statistical software Primer version 6.

3. Results

In the present study it was observed that there was significant (<0.05) decrease in systolic blood pressure with 61-point relaxation technique in both the groups (Table 1) and this mean difference in decrease in systolic blood pressure was found significantly (<0.05) more in > 30 years aged females i.e. 2.94 and 6.38 mm of Hg. (Fig. 1)

Likewise for diastolic blood pressure, there was also significant (<0.05) decrease in diastolic blood pressure with 61-point relaxation technique was found in both the groups in the present study (Table 2) but this mean difference in decrease in diastolic blood pressure was not found significantly (>0.05). (Fig. 1)

It was also observed in the present study that there was also significant (<0.05) decrease in heart rate with 61-point relaxation technique was found in both the groups (Table 3) but this mean difference in decrease in heart rate was not found significantly (>0.05). (Fig. 1)

Regarding respiratory rate it was observed in the present study that there was also significant (<0.05) decrease in respiratory rate with 61-point relaxation technique in both the groups (Table 4) and this mean difference in decrease in respiratory rate was found significantly (<0.05) less decrease in > 30 years aged females i.e. 1.8 and 0.95 per minute. (Fig. 1)

Table 1
Association of Age with *Mean Systolic blood pressure

S. No.	Timing in relation to Intervention	Age ≤30 years (N=30)	Age >30 years (N=30)
1	**Before Intervention (mm of Hg)**	123.3±5.66	134.52±4.04
2	**After RT (mm of Hg)**	120.36±3.30	128.14±4.85
	Unpaired 't' Test at 58 DF **P value LS**	2.458 **P=0.017 S**	5.536 **P<0.001 S**

Table 2
Association of Age with *Mean Diaystolic blood pressure

S. No.	Timing in relation to Intervention	Age ≤30 years (N=30)	Age >30 years (N=30)
1	**Before Intervention (mm of Hg)**	83.4±2.89	88.68±4.72
2	**After RT (mm of Hg)**	80.13±3.2	85.18±5.10
	Unpaired 't' Test at 58 DF	4.154	2.759
	P value LS	**P<0.001 S**	**P=0.008 S**

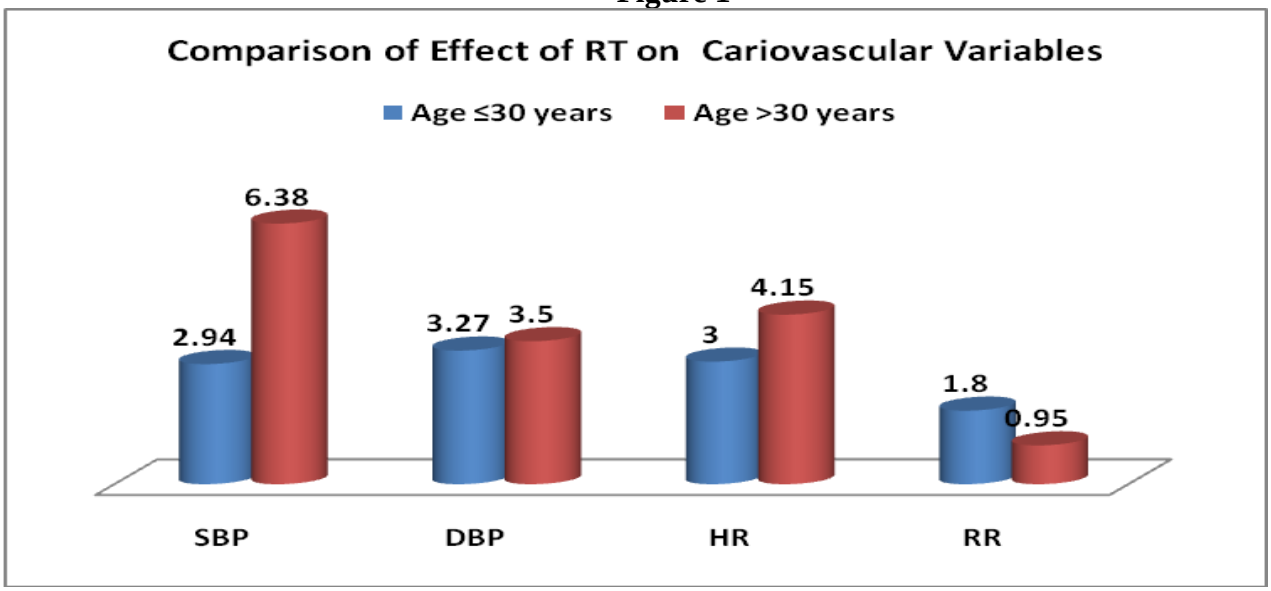
Table 3
Association of Age with *Mean Heart Rate

S. No.	Timing in relation to Intervention	Age ≤30 years (N=30)	Age >30 years (N=30)
1	**Before Intervention (per minute)**	74.00±2.68	74.50±3.16
2	**After RT (per minute)**	71.00±3.32	70.35±3.56
	Unpaired 't' Test at 58 DF	3.908	4.775
	P value LS	**P<0.001 S**	**P<0.001 S**

Table 4
Association of Age with *Mean Respiratory Rate

S. No.	Timing in relation to Intervention	Age ≤30 years (N=30)	Age >30 years (N=30)
1	**Before Intervention (per minute)**	18.6±2.90	18.50±2.86
2	**After RT (per minute)**	16.8±2.6	17.55±2.92
	Unpaired 't' Test at 58 DF	2.531	4.775
	P value LS	**P=0.014 S**	**P=0.208 NS**

Figure 1



***Mean change in mean before and after intervention (RT)**

So it can be depicted form the study that although there was significant reduction of SBP, DBP, HR and RR in both the groups but significant difference in reduction was observed only in SBP and RR only and that to significantly more decrease in SBP in more than 30 years and significantly more decrease in HR in equal to or less than 30 years than the other counter group.

4. Discussion:

Present study observed that there was significant decrease in systolic blood pressure, diastolic blood pressure, heart rate and in respiratory rate with 61-point relaxation technique in both the groups but when the magnitude of this decrease in all above parameters were concerned it was observed that significant difference in reduction was observed only in SBP and RR only and that to significantly more decrease in SBP in more than 30 years and significantly more decrease in HR in equal to or less than 30 years than the other counter group.

Jain et al[9] also observed that yoga relaxation technique have positive effect on cardiovascular system and it reduces stress. Like wise other authors also observed reduction in respiratory rate, oxygen consumption, arterial lactate levels and other sympathetic activity.[1, 3,4] This is also supported by findings of Stefano GB etall[2] who narrated that relaxation has the opposite of the stress response.

Deepak P etall[10] also found reduction of cardiovascular parameter with 61-point relaxation technique in their setting.

Derebail etall[11] found in their study that salivary amylase level decreased after yoga practice in both the groups. When compared between the groups there was no difference in effect. In seniors sAA level was higher; this may be due to stress or increased sympathetic activity or increased epinephrine levels compared to the young. Decreased sympathetic activity signifies a decrease in stress level. In young individuals the sAA level was low compared to seniors and it reduced after yoga practice. This signifies that yoga helps to improve mental health and to overcome routine stress. Finally they conclude and sugest from their study that Yoga helps to improve the mental health of both the young and seniors

by reducing stress. Yoga can be wisely applied in welfare programs to improve the Quality of Life in all age groups.

Even mentally repeating 'OM' showed reduction in sympathetic activity compared to a neutral word and non-targeted thinking.[12] By practicing asana, flow of prana becomes normal and by practicing pranayama one can control the prana. Even pranayama like Bhramari has a soothing effect on the mind. Later, by practicing meditation one can easily concentrate and relax. Chanting 'OM' helps to control the mind from different unwanted thoughts.

Other authors[13-19] in India and abroad also reposted positive effect of Yoga and relaxation techniques.

Hence it can be depicted from the present study and the above mentioned references that the relaxation technique aids in tilting the autonomic balance towards parasympathetic dominance as evidenced by reduction in blood pressure, heart rate and respiratory rate. But as far as the effect of age is concerned on this response it was significantly more decrease in SBP in more than 30 years and significantly more decrease in HR in equal to or less than 30 years than the other counter group.

CONCLUSIONS

Blood pressure, heart rate and respiratory rate reduces with 61-point relaxation technique but effect of age on this response on all above parameters were concerned it was found that Systolic Blood Pressure and Respiratory Rate is affected with age in reducing these supra-said parameters. This reduction in Systolic Blood Pressure was more in older women than younger ones whereas reduction in Respiratory Rate was more in younger women than older ones.

REFERENCES

1. Anand BK, Chinna GS. Studies on Shri Ramanand Yogi during stay in airtight box. Ind J Med Res. 1961 ; 49 : 82 - 89.
2. Stefano GB, Fricchione GL, Slingsby BT, Benson H. The placebo effect and relaxation response: Neural processes and their coupling to constitutive nitric oxide. Brain Research: Brain Research Reviews 2001; 35: 1–19
3. Wallace RK, Benson H. The physiology of meditation. Scientific American 1972; 226: 85–90.
4. Vempati RP, Telles S. Yoga-based guided relaxation reduces sympathetic activity judged from baseline levels. Psychological Reports 2002; 90: 487–494
5. Anand BK. Yoga & medical sciences. Indian journal of physiology & pharmacology. 1991 ; 35(2) : 84 -87.
6. Bijlani RL. Guest editorial – influence of yoga on brain & behaviour. Indian journal of physiology & pharmacology. 2004: 48(1): 113.
7. Brown RP, Geebarg PL. Sudershan kriya Yogic Breathing in treatment of stress, anxiety & depression part 1 - neurophysiolmodel. J alt complement medicine. 2005 ; 11(1) : 189 -201.
8. Girdler SS, Pederson CA, Stern RA, Light KC. Menstrual cycle and premenstrual syndrome : modifiers of cardiovascular reactivity in women . Health Psychol 1993 ; 12: 180-192 .
9. Jain S, Jain M, Sharma CS. Effect of yoga and relaxation techniques on cardiovascular system. Indian journal of physiol and pharmacol 2010 ; 54(2) : 183-185.
10. Deepak P, Vaidehi H Vyas and Shrirupa H Vyas. Mind body therapy in management and prevention of cardio-vascular diseases. Comprehensive therapy may 1999 vol 25 issue 5 283-293
11. Derebail Gururaja, Kaori Harano, Ikenaga Toyotake, and Haruo Kobayashi. Effect of Yoga on Mental Health: Comparative Study between Young and Senior Subjects in Japan. Int J Yoga. 2011 Jan-Jun; 4(1): 7–12.

12. Telles S, Nagarathna R, Nagendra HR. Autonomic changes while mentally repeating two syllabus-one meaningful and the other neutral. Indian J Physiol Pharmacol. 1998;42:57–63. [PubMed] http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3099103/
13. Sieverdes JC, Mueller M, Gregoski MJ, Brunner-Jackson B, McQuade L, Matthews C, Treiber FA. Effects of Hatha Yoga on Blood Pressure, Salivary A-Amylase and Cortisol Function among Normotensive and Prehypertensive Youth. Journal of Alternative and Complementary Medicine. 2014 Apr 1; 20(4)241-250
14. Shankarapillai R, Nair MA, George R. the effect of yoga in stress reduction for dental students performing their first periodontal surgery: a randomized controlled study. Int J Yoga. 2012 Jan; 5(1):48-51.
15. Mooventhan A, Khode V. Effect of Bhramari Pranayama and OM Chanting on Pulmonary Function in Healthy Individuals: A Prospective Randomized Control Trial International Journal of Yoga. 2014; 7(2)104-110
16. Kauts A, Sharma N.Effect of yoga on academic performance in relation to stress..Int J Yoga. 2009 Jan; 2(1):39-43.
17. Sarang PS, Telles S Oxygen consumption and respiration during and after two yoga relaxation techniques..Appl Psychophysiol Biofeedback. 2006 Jun; 31(2):143-53.
18. Subramanya P, Telles S. Effect of two Yoga-Based Relaxation Techniques on Memory Scores and State Anxiety. Biopsychosoc Med. 2009 Aug 13; 3:8. Epub 2009 Aug 13
19. Ratna Sharma. Meditation and Mental Well Being. Indian J Physiol Pharmacol 2006; 50 (3) : 205–214