ISSN: 2349 - 4891

International
Journal of Recent Research and Applied Studies
(Multidisciplinary Open Access Refereed e-Journal)

Effect of Yogic Practices on Blood Pressure and Stress among Middle Aged Men

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Received 24th August 2020, Accepted 2nd October 2020

Abstract

The purpose of the present study was to find out the effect of yoga practice on blood pressure and stress among middle aged men. For this purpose, thirty middle aged men residing around Annamalainagar town, Cuddalore district, Tamilnadu, were selected as subjects. The age of the subjects were ranged from 40 to 45 years. They were divided into two equal groups, each group consisted of fifteen subjects, in which experimental group - I underwent yoga practice, and group - II acted as control that did not participate in any special activities apart from their regular curricular activities. The training period for the study was six days (Monday to Saturday) in a week for twelve weeks. Prior and after experimental period, the subjects were tested on systolic and diastolic blood pressure and stress. Blood pressure was measured by using sphygmomanometer and stress was assessed by Girdano and Everly Stress Scale. The Analysis of Covariance (ANCOVA) was applied to find out any significant difference between the experimental groups and control group on selected criterion variables. The result of the study shows that the yoga practice group decreased the blood pressure and stress significantly. It was concluded from the results of the study that yoga practice has bring positive changes in systolic and diastolic blood pressure and stress as compare to the control group.

Keywords: Yoga Practice, Systolic and Diastolic Blood Pressure, Stress, ANCOVA.

Introduction

Yoga is an art, a science and a philosophy and touches the life of man at every level, physical, mental, and spiritual. It is a sensible technique for making one's life purposeful, useful and noble.[1] In this view, yoga is an exercise in moral and mental cultivation that generates good health (*arogya*), contributes to longevity (*chirayu*) and the total inherent discipline culminates into positive and recurrent happiness and peace.[19] It is originated in India many thousands of years ago and it is the oldest system of personal development in the world, encompassing body, mind and spirit.[2,10] In ancient book "Yoga Sutra", written by Patanjali, a saint, who collated, coordinated and systematized, which consists of 185 terse aphorisms.[3] It is a psycho-somatic-spiritual discipline for achieving harmony and union between our body, mind, and soul which is an decisive blending of the human being's consciousness with the universal consciousness.[4] When a human being practices yoga, with the attitude of yoga (attitude of tolerance, constant practice, overcoming obstacles within himself or herself, that is, thrashing laziness, anger, illusion, and aspiration for being different or better than others), there are several changes in physiology.[5] Yoga helps to concentrate on breath, which makes it to soothe the mind and relieve worries. By discharging the tension and stress, yoga and pranayama relieve the negative thinking of the individual. The activities like relaxation, meditation, socialization and exercise, yoga is helpful in reducing the anxiety and stress. Also it is able to regulate a person's stress response system; results lower the blood pressure and heart rate which improve the respiration. Numerous studies show that the blood pressure was reduced in people with hypertension during the yogic practice session.[6,7,8] This is possible the autonomic nervous system, which governs heart rate, digestion and other largely unconscious functions.[9] Yoga reduces the stress and help to relax, which leads to lower the resting heart rate. Yogasanas prescribe steady and controlled breathing patterns which help to relax the muscles, including the heart. Pranayama focuses the mind and helps to know how to control the respiration rate.

The force elevated during the circulation of blood on the walls of blood vessels are called blood pressure and is one of the principal vital signs. At every heart beat, the blood pressure differ between a high (systolic) and a low (diastolic) pressure.[11] Practicing yoga at adult age, with relaxation and breathing exercises minimum three times a week will lower the blood pressure than the sedentary adults.[12] In the universe, the stress is a common mental illness. 350 million people in the universe are affected by stress in different form.[13] Symptoms are depressed or sad mood, short-

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ISSN: 2349 – 4891

tempered or easily annoyed, loss of interest or enjoyment in hobbies or activities that was previously enjoyed, feeling of worthlessness or guilt, thoughts of death or suicide, difficulty with concentrating or making decisions, feeling tired or fatigue, feeling restless or slow, changes in appetite such as overeating or loss of appetite, changes in weight such as weight loss or weight gain, and changes in sleep pattern.[14] There are several mechanisms in yoga that have an effect on stress levels, meaning there are multiple ways that yoga can minimize your stress levels.[20] Studies show that the most effective ways in which yoga targets stress are by lifting your mood (or positive affect), by allowing for increased mindfulness, and by increasing self-compassion.[21]

Methodology

The purpose of this study was to find out the effect of yoga practices on blood pressure and stress among middle aged men. To achieve the purpose of the present study, 30 middle aged men around Chidambaram, Tamilnadu were randomly selected as subjects. The age of the subjects were ranged from 40 to 45 years (mean age = 42.3 ± 0.5 years). All the subjects were residing at their home, so, the food habits were not same and could not be measured. The selected subjects were divided into two equal groups of fifteen subjects each. Group - I considered as experimental group who underwent yoga practices for sixteen weeks, six days (Monday to Friday) per week on selected yoga exercises (appendix – I) and the same were taught by yoga teachers from School of Yoga Studies, Annamalai University, Annamalainagar, Chidambaram. Group - II considered as control that did not undergo any training programme or physical activity (either strenuous or recreational) throughout the experimental period. The data were collected on selected criterion variables such as blood pressure was assessed by using sphygmomanometers and stress was assessed by administering Girdano and Everly Stress Scale, before and after the sixteen weeks of yoga practices as pre and post test. Analysis of covariance (ANCOVA) was applied to find out the significant difference if any between the experimental and control groups.

Results

Table 1. *Analysis of Covariance on Systolic and Diastolic Blood Pressure and Stress of Yoga Practice Group and Control Group*

Variable Name		Yoga Practice Group	Control Group	'F' Ratio
Systolic Blood Pressure (in mm Hg)	**Pre-test Mean ± S.D**	123.46 ± 2.11	122.31 ± 2.86	2.34
	Post-test Mean ± S.D.	120.31 ± 1.81	123.16 ± 2.67	25.21*
	Adj. Post-test Mean	120.713	123.62	31.26*
Diastolic Blood Pressure (in mm Hg)	**Pre-test Mean ± S.D**	81.26 ± 1.86	82.19 ± 1.39	1.79
	Post-test Mean ± S.D.	78.35 ± 1.92	82.51 ± 1.64	45.95*
	Adj. Post-test Mean	78.77	82.39	86.21*
Stress (Points)	**Pre-test Mean ± S.D**	23. 86 ± 1.86	24.26 ± 1.31	1.53
	Post-test Mean ± S.D.	19.08 ± 1.42	24.89 ± 1.33	32.89*
	Adj. Post-test Mean	19.731	24.22	86.39*

*Significant at 0.05 level of confidence.(The table values required for significance at 0.05 level of confidence for 1 and 28 & 1 and 27 are 4.20 and 4.21 respectively).

Table 1 shows that pre test means 'f ratio of yoga practice group and control group on systolic blood pressure was 2.34 which was insignificant at 0.05 level of confidence. The post and adjusted post test means 'f' ratio value of experimental group and control group was 25.21 and 31.26, which was significant at 0.05 level of confidence. The pre test means 'f ratio of brisk yoga practice group and control group on diastolic blood pressure was 1.79, which was insignificant at 0.05 level of confidence. The post and adjusted post-test mean 'f' ratio value of experimental group and control group was 45.95 and 86.21, which was significant at 0.05 level of

ISSN: 2349 – 4891

confidence. The pre test means 'f' ratio of yoga practice group and control group on stress was 1.53 which was insignificant at 0.05 level of confidence. The post and adjusted post test mean 'f' ratio value of experimental groups and control group was 32.89 and 86.39, which was significant at 0.05 level of confidence.

Conclusion

Systolic and diastolic blood pressure decreased for yoga practice group[15,16,17] has also decreased for both the experimental groups, such as yoga practice group, when compared with the control group. The stress was also decreased significantly after the yoga practice.[18,21] The overall study indicates that the yoga practice is a better tool to improves the physiological and psychological fitness.

Reference

1. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders (DSM-5). 5th ed Arlington, VA: American Psychiatric Association; 2013.
2. Benerji, Vijaya G, Rekha KUmari Dulala, Farid Babu Meka and Ratna Kummar N, (July – August, 2013) "Effect of Yoga on Heart Rate, Blood Pressure, Body Mass Index", *Journal of Dental and Medical Sciences*, 8:2, 36-39.
3. Elizabeth Scott, "The benefits of yoga for stress management", Retrieved from https://www.verywellmind.com/the-benefits-of-yoga-for-stress-management-3145205 on 21-02-2020.
4. Jeremy West, Christian Otte, Kathleen Geher, Joe Johnson and David C. Mohr, "Effects of Hatha Yoga and African Dance on Perceived Stress, Affect and Salivary Cortisol", *Annals of Behavioral Medicine*, 28:2, (October 2004), 114-118.
5. Lisa Rapaport, "Yoga Linked to Lowered Blood Pressure With Regular Practice", Retrieved from https://in.reuters.com/article/us-health-yoga-blood-pressure/yoga-linked-to-lowered-blood-pressure-with-regular-practice-idINKCN1QH2MK on 22-01-2020.
6. Madanmohan, Mahadevan SK, Balakrishnan S, Gopalakrishnan M, Prakash ES. Effect of 6 wks yoga training on weight loss following step test, respiratory pressures, handgrip strength and handgrip endurance in young healthy subjects. Indian J Physiol Pharmacol. 2008;52:164–70.
7. Nemoto K, Gen-no H, Masuki S, Okazaki K and Nose H, (July 2007), "Effects of High-intensity Interval Walking Training on Physical Fitness and Blood Pressure in Middle-aged and Older People", *Maya Clin Proc*, 82:7, 803-11.
8. Pal, A. N. Srivastava, S. Tiwari, N.S. Verma, V.S. Narain, G.G. Agrawal, S.M. Natu and K. Kumar, "Effect of Yogic Practices on Lipid Profile and Body Fat Composition in Patients of Coronary Artery Disease", *Complementary Therapies in Medicine*, 19:3, June 2011.
9. Raja, Chidambara S. (September 2014), "Effect of Yogic Practices and Physical Exercises on Strength Endurance Self-concept and Blood Pressure", *PESY*, 4:3, 7-11.
10. Retrieved from http://en.wikipedia.org/wiki/Blood_pressure on 10-03-2012.
11. Retrieved from http://hinduism.about.com/bl-yoga-define.htmon on 24-04-2012.
12. Retrieved from http://www.minddisorders.com/Py-Z/Yoga.html on 24-04-2012.
13. Retrieved from https://hridaya-yoga.fr/yoga-union-with-the-divine/?gclid=Cj0KCQiAk7TuBRDQARIsAMRrfUY0ovR4S0Y6-lmfiGOnwDnCt5-VkzVCPctFCZYlYdy51nkzK2ppINkaAqKUEALw_wcB on 12-09-2018.
14. Riley KE, Park CL. "How does yoga reduce stress? A systematic review of mechanisms of change and guide to future inquiry", *Health Psychol Rev*. 9:3, (2015), 379-96.
15. S. Ananth and S. Chidambara Raja, "Effects of Different Modes of Yoga Practice on Percentage of Percentage of Body Fat and Biochemical Variables", *Global Journal for Research Analysis*, 7:8, (August 52018), 101-103.
16. Satyanarayana P. G. Vijaya Benerji, REkha Kumari Dulala, Farid Babu Meka and N. Ratna Kummari, "Effect of Yoga on Heart Rate, Blood Pressure and Body Mass Index", *Journal of Dental and Medical Sciences*, 8:2, July – August, 2013.
17. Schmidt, A and Thews, G, *Autonomic Nervous System*, In Janig, W (ed.). *Human Physiology*, (2 ed.). (New York, NY: Springer-Verlag, 1989), pp. 333–370.
18. Swami Vishnu Devananda, (2000) *The Sivananda Companion to Yoga*, (New York: Fireside Book, Simon and Schuster), p. 10.
19. Tandon OP. "Yoga and its applications", In: Tandon OP, Tripathi Y, editors. *Best and Taylor's Physiological Basis of Medical Practice*. 13th ed. Gurgaon: Wolters Kluwer health/Lippincott Williams and Wilkins publishers; 2012. pp. 1217–30.
20. Tundwala, Vijay R.P. Gupta, Surendra Kumar, V.B. Singh, B.R. Sandeep, Prabhu Dayal and Parul Prakash, "A Study on Effect of Yoga and Various Asanas on Obesity, Hypertension and Dyslipidema", *Internation Journal of Basic and Applied Medical Sciences*, 2:1, January – April 2012.