

# **Impact of Yoga practice on Physiological measures in Anxiety conditions**

**Dr. Annapoorna K<sup>1</sup> Dr. Latha K S<sup>2</sup> Dr. Bhat S M<sup>3</sup> & Dr. Bhandary P V<sup>4</sup>**

1. Kasurba Medical college and Hospital, Manipal University, Karnataka
2. Dr. K. S. Latha, Professor & Psychosocial Consultant , Dr. AV Baliga Hospital, Udupi
3. Professor Department of Psychiatry, K.M.C.Hospital, Manipal University, Karnataka
4. Psychiatrist and Medical Director, Dr. AV Baliga Memorial Hospital, Udupi, Karnataka

**Email: anuupadhya@rediff.com**

## **Abstract**

Anxiety is a condition, a response to a physical threat or psychological distress that generates a host of chemical and hormonal reactions in the body. The anxiety reaction generally has two components, one physiological and the other psychological, and both are mediated largely by the adrenergic neurotransmitter system. Yoga therapy is skillful methodological way to calm down the mind. A general feature of yoga practices is their capability of inducing a coordinated psycho physiological response, which is the antithesis of the anxiety response. Practice of yoga develops the personality physically, mentally, emotionally from a holistic perspective offers a total and comprehensive approach to the challenges posed by anxiety conditions.

In the present study twenty female subjects aged about 20 to 40 years who volunteered and who had reported anxiety conditions such as examination anxiety, job related anxiety, family related anxiety that manifested as anxiety, depression, headaches, sleeplessness, stomach upsets and other vague symptoms formed the sample of the study. They had been investigated for various medical disorders and found no abnormality and hence referred for yoga therapy. They were trained in yoga therapy. Pre assessment and post assessment was conducted before therapy and after one month follow up. Findings revealed that the physiological measures such as blood pressure, pulse rate, respiratory rate, body weight in addition to subjective feelings of anxiety were found to be significantly decreased, also improvements in appetite and sleep, showing that routine practice might have long term implications in this fast stress ridden life.

**Key words** – Yoga therapy, anxiety, relaxation, physiological measures

## **Introduction**

Yoga is a science to calm the mind and steady the emotions by overcoming anxiety conditions and attaining relaxation. Fear is a basic human emotion that has been crucial for survival both as an individual and as a species. Anxiety is the normal reaction of an organism to a stressor, which may be external or internal. The anxiety reaction generally has two components, one physiological and the other psychological, and both are mediated largely by the adrenergic neurotransmitter system (1)

Anxiety is a condition, a response to a physical threat or psychological distress that generates

a host of chemical and hormonal reactions in the body. The feeling of anxiety is a combination of our perception of events or situations and our body's physiological reaction. In essence, the body prepares to fight or flee, pumping more blood to the heart and muscles and shutting down all non-essential functions. This condition gives rise to more anxiety which manifests in the form of psychosomatic symptoms or anxiety disorders.

People suffer from conditions like examination anxiety, executive anxiety, health anxiety, death anxiety, menopausal anxiety, marital anxiety, social anxiety, and performance

anxiety so on. These anxiety conditions if not treated properly, can cause headaches, irritable bowel syndrome, eating disorder, allergies, insomnia, backaches, frequent cold and fatigue to diseases such as hypertension, asthma, diabetes, heart ailments and even cancer.

### **Yoga therapy and Anxiety conditions**

Yoga Therapy is a practical discipline incorporating a wide variety of practices whose goal is the development of a state of mental and physical health, well being, inner harmony and ultimately a union of the human individual with the universal (2). A general feature of yoga practices is their capability of inducing a coordinated psycho physiological response, which is the antithesis of the anxiety response. This relaxation response consists of a generalized reduction in both cognitive and somatic arousal as observed in the modified activity of the hypothalamic pituitary axis and the autonomic nervous system. (3)

Effect of practice of yoga was investigated in various anxious conditions and results found to be positive in these studies. Students under optimal anxiety do bring out their best, because extremes of anxiety can result in stress induced disorders and deteriorating performance. In a study on medical students conducted to determine the benefit of yogic practices on anxiety status during routine activities and prior to examination. Results indicated the beneficial role of yoga in not only causing reduction in baseline anxiety level but also attenuating the increase in anxiety score in stressful state such as examinations (4)

Job stress is a major occupational health problem in many sectors of industries. In a study to examine the effects of short duration stress management training on self perceived depression, anxiety and stress in male automotive assembly workers. The findings are indicated that anxiety symptoms were significantly decreased, respectively, after the

yoga intervention program in the experimental group as compared to the control group. (5)

In a study compared the anxiolytic effects of a yoga and supportive therapy in breast cancer patients undergoing conventional treatment. The results suggest that yoga can be used for managing treatment-related symptoms and anxiety in breast cancer patients. (6)

In a study of female subjects, the findings suggest that patients with menstrual irregularities having psychological anxiety problems improved significantly in the areas of their wellbeing, anxiety and depression by learning and applying a program based on yogic intervention.(7). In a study participants reported a decrease in menopausal distress symptoms and an increase in quality of life following the yoga program. (8)

A study (9) **conducted** on role of yoga therapy in anxiety neurosis and depression, patients of anxiety neurosis and depression opted for yoga therapy along with routine medical treatment and at the end of one year patients showed very good improvement, and yoga therapy was very useful for anxiety states. These results suggest that yoga therapy can be used for the management of anxiety related symptoms and anxious conditions.

### **Materials and Method**

**Setting:** Department of Yoga, KMC Hospital, Manipal. 20 female subjects aged between 20 to 40 years volunteered who reported of subjective feelings of anxiety and stress such as examination anxiety, job related anxiety, family related anxiety in addition to some symptoms of depression, head ache, sleeplessness, stomach upsets and other vague complaints. All medical conditions had been ruled out by the physician whom they had consulted. They were neither practicing any form of yogic technique nor any form of physical exercise. Written consents were taken and their baseline readings were taken.

**Physiological measures:**

Systolic and Diastolic blood pressure by using Sphygmomanometer, Pulse rate by using Pulse Oximetry, Respiratory rate manually and Body weight by weighing machine

All subjects were enquired ‘Whether they were feeling tensed, anxious for no obvious or trivial reason and what they were experiencing’, and was recorded. All subjects underwent yoga sessions of asana, pranayama, dhyana, relaxation training for one hour daily in the morning for one month under the guidance of the trained instructor. The training included the following practices.

(10), (11) Swastikasana, Tadasana, Ardha Chandrasana, Pawanmuktasana, Bhujangasana, Shalabhasana, Padottanasana, Nadishodhana pranayama, Bhramari pranayama, Object dhyana, Makarasana & Shavasana.

At the end of one month practice all parameters were measured and recorded. There were no drop outs. Statistical analysis: All data were analyzed using descriptive statistics. Baseline and final means was compared using Paired t test and underwent p-value analysis. P values < 0.05 were considered statistically significant.

**Results**

Table 1: Physiological measures

Parameter	Sample size	Before yoga therapy	After yoga therapy	95% confidence interval		t	Significance
		Mean ±SD	Mean ±SD	Lower	Upper		
SBP	20	120.8±12.3	112.5±6.35	3.76	12.83	3.8	0.001
		2.75*	1.42*				
DBP	20	77.3±6.3	70.2±4.39	3.95	10.24	4.72	0.001
		1.4*	0.98*				
PR	20	77.6±7.18	72.9±5.25	1.86	7.63	3.45	0.003
		1.6*	1.17*				
RR	20	19.4±2.85	18.25±3.41	0.20	2.19	2.53	0.020
		0.63*	0.76*				
Wt	20	55.47±8.99	54.0±8.79	0.96	1.98	6.03	0.001
		2.01*	1.96*				

SBP – systolic blood pressure, DBP- diastolic blood pressure, PR- pulse rate, RR- respiratory rate, Wt-weight , \* < 0.05

**Discussion**

Table 1 depicts the physiological parameters of the sample, the baseline and post assessment i.e. prior to starting the practice of yoga and one month after the

training in yoga. As is evident from the table there was significant drop in mean blood pressure- SBP (120.8 ±12.3 to 112.5 ±6.35 mm Hg <0.05); DBP (77.6 ±6.3 to 72.2 ±4.39 mm Hg <0.05); pulse rate

(77.6  $\pm$ 7.18 to 72.9  $\pm$ 5.25/min <0.05); respiratory rate (19.4  $\pm$ 2.85 to 18.3  $\pm$  3.41<0.05), body weight (55.5  $\pm$ 8.99 to 54.0  $\pm$ 8.79 Kg <0.05) all of which were statistically significant.

It was also evident that complaints such as anxiety, depression, head ache, sleeplessness, stomach upset due to anxiety were reduced. Also improvement in appetite and sleep indicating decreased sympathetic activity leading to reduction of stress were reported. All subjects also reported decrease in subjective feelings of anxiety.

The purpose of this study was to determine the role of yoga training in modulating anxiety among normal female volunteers who reported on their own or referred by the physician for vague bodily symptoms

and other anxiety related psychological symptoms. Yoga training for 30 days resulted in statically significant reductions in all physiological measures. Decreased systolic pressure can be attributed to yogic relaxation and meditation, which reduces the sympathetic action (12). During meditation the respiration becomes slow and shallow (13). The decrease in pulse rate can be attributed to the direct effect of sympathetic activity.

### **Conclusion**

Yoga is the process of elevating one self through the process of calming the mind .Thus the practice of Yoga develops the personality physically, mentally, emotionally from a holistic perspective offers a total and comprehensive approach to the challenges posed by stress and anxiety condition.

### **References**

1. Crow SF (1998) Neuropsychological effects of The Psychiatric Disorders, Harwood Academic Publishers, Melbourne, Australia.
2. Aurobindo S (1999) The Synthesis of Yoga. Pondicherry, Indi,: Sri Aurobindo Ashram Publication Department, 5th Edition.
3. Benson H. (1976)The Relaxation Response .New York: Avon Books.
4. Malathi A, Damodaran A.(1999) Stress due to exams in medical students: role of yoga. *Indian J Physiol Pharmacol* ;43:218–24.
5. Edimansyah BA, Rusli BS, Naing L (2008) Effects of short duration stress management training on self-perceived depression, anxiety and stress in male automotive assembly workers: a quasi-experimental study. *Journal of Occupational Medicine and Toxicology*. doi:10.1186/1745-6673 .3:28; 1-9.
6. Rao, M.R. Raghuram, N. Nagendra, H.R. Gopinath, K.S., Srinath, B.S., Diwakar, R.B., Patil, S., ilimagga, S.R., Rao, N., Varambally, S, (2008) Anxiolytic effects of yoga program in early breast cancer patients undergoing conventional treatment: A randomized controlled trial, *Complementary Therapies in Medicine* ; Elsevier Ltd.(1):1-8
7. Khushbu Rani, SC Tiwari, Uma Singh, GG Agrawal, Archana Ghildiyal, and Neena Srivastava (2011) Impact of Yoga Nidra on psychological general wellbeing in patients with menstrual irregularities: A randomized controlled trial. *Int J Yoga*. Jan-Jun; 4(1): 20–25.
8. Mastrangelo, M.A., Galantino, M.L, House, L (2007) Effects of Yoga on Quality of Life and Flexibility in Menopausal Women: A Case Series. *Source: Explore*, 3(1), 42-45.
9. Pedrode Vicente (1987) role of yoga therapy in anxiety neurosis and depression. *Yoga Mimamsa* Vol. xxvi, No.3 and 4; 1-14
10. Iyengar BKS (1988) *Light on Yoga*. George Allen, Unwin Publishers Ltd, Australia.
11. Shah, J.T. (1999) *Therapeutic yoga*. Vakils Feffer and Simons Pvt. Ltd. Mumbai, 1st Edition , 47; 95-99
12. Bijalani RL (2004) Getting introduced to Yoga. *Understanding Medical Physiology*.
13. Allison J, (1970) "Respiratory Changes during Transcendental Meditation", *The Lancet*, 833-834.