

A Study on Effect of Yoga and Pranayam on Academic Performance for College Students

Dr. Ratul Sarma

*Asst. Professor & HOD in Sanskrit,
Paschim Barigog Anchalik Mahavidyalaya,
P.o- Barang Hati, Dist- Kamrup (Rural), Pin- 781350*

Abstract—Academic performance is concerned with the quantity and quality of learning attained in a subject or group of subjects after a long period of instruction. Excessive stress hampers students' performance. Improvement in academic performance and alertness has been reported in several yogic studies. The main objective of the study was to assess the effect of yoga on academic performance in relation to stress. The study started with 800 adolescent students; 159 high-stress students and 142 low-stress students were selected on the basis of scores obtained through Stress Battery. Experimental group and control group were given pre test in three subjects, i.e., Mathematics, Science, and Social Studies. A yoga module consisting of yoga asanas, pranayama, meditation, and a value orientation program was administered on experimental group for 7 weeks. The experimental and control groups were post-tested for their performance on the three subjects mentioned above. The results show that the students, who practiced yoga performed better in academics. The study further shows that low-stress students performed better than high-stress students, meaning thereby that stress affects the students' performance.

Keywords: Yoga, Pranayam, Physical education.

1. INTRODUCTION

Depression is a disorder of mood involves varying levels of sadness and despair associated with stress. Depression has received a lot of attention in the media and is far more widely accepted today than it has ever been in the past. The term "stress" was firstly employed in the 1930's by the endocrinologist Hans Selye [1]. Stress is a response to any event which is perceived to alter or threaten our well-being and is a cognitive (thought) process; is the body's reaction to a change that requires a physical, mental or emotional response. Indian education system resembles colonial legacy: educational structure, curriculum design and pattern of examination [2]. But too much stress can cause a lot of discomfort and can get in the way of being able to focus and achieve. As a college student all have a lot of demands on them, which it can be difficult to balance. Stress is a term in Psychology and Biology, which in the more recent decades, has become a common place of popular parlance.

Yoga is an ancient discipline designed to bring balance and health to the physical, mental, emotional, and spiritual

dimensions of the individual. It is long popular practice in India that has become increasingly more common in Western society. "Yoga" means union of our individual consciousness with the Universal Divine Consciousness in a super-conscious state known as Samadhi.[3,4] The first book of humankind, Rigveda, mentions about yogic meditation by the wise, while Yajurveda exhorts us to practice yoga for enhancing mental health, physical strength, and prosperity. Upanishads are replete with yogic concepts. In addition,

2. LITERATURE REVIEW

Many people in the USA today claim to practice yoga for its health benefits without consciously adopting Hindu religious perspectives which underlies the practice and usually become apparent in more advanced stages of instruction. Elementary courses of *hatha yoga* focus on physical exercises consisting of various postures and breathing techniques. A growing body of research evidence supports the belief that certain yoga techniques may improve physical and mental health through down-regulation of the hypothalamo pituitary adrenal (HPA) axis and the sympathetic nervous system.

The stress and stress-induced disorders like hypertension and angina are fast growing epidemics and bane of "modern" society. The holistic science of yoga is the best method for prevention as well as management of stress and stress-induced disorders. Numerous studies have shown yoga to have an immediate down-regulating effect on both the HPA axis responses to stress. Effectiveness of yoga against stress management is well established.[5] It was also found that brief yoga-based relaxation training normalizes the function of the autonomic nervous system by deviating both sympathetic and parasympathetic indices toward more "normal" middle region of the reference values.[6] Studies show that yoga decreases levels of salivary cortisol,[7,8] blood glucose,[9,10] as well as plasma rennin levels, and 24-h urine nor-epinephrine and epinephrine levels.[11] Yoga significantly decreases heart rate and systolic and diastolic blood pressures. [11-13] These studies suggest that yoga has an immediate quieting effect on the HPA axis response to stress. While the precise mechanism of action has not been determined, it has been hypothesized

that some yoga exercises cause a shift toward parasympathetic nervous system dominance, possibly via direct vagal stimulation.[14] Shapiro *et al.*[15] noted significant reductions in low-frequency heart rate variability – a sign of sympathetic nervous system activation – in depressed patients following an 8-week yoga intervention. Regardless of the patho physiologic pathway, yoga has been shown to have immediate psychological effects: decreasing anxiety[7,8,16,17] and increasing feelings of emotional, social, and spiritual well-being.

3. PURPOSE OF THE STUDY

The main objective of the study was to assess the effect of yoga and pranayam on academic performance in relation to stress

4. METHODOLOGY

The participants of this study were selected from College of Agriculture, NAU, Waghai in Gujarat. The study was divided into two groups (i.e. Experimental group and Control group) on the basis of scores obtained through the Pre-test. Each group consist of 30 students. A questionnaires of 10 questions was given to both groups and then analysis was done on their behavior. A yoga module consisting of yoga asanas, pranayama, meditation, and a value orientation program was administered on experimental group for 7 weeks. The experimental and control groups were post-tested for their performance. Both the group was instructed by their instructor, separately. At the beginning pre-test was given to both groups and at the end, a post-test was given in order to compare the mean score of two groups.

5. RESULT

The scores of students pre-test and post-test was computed using statistical tools, analysis showed that at the beginning of the experiment two groups did not differ much(as shown in the Table 1), but result in post-test it shows that the experimental group did better than the control group. The result also indicates the effectiveness of yoga and pranayam on students performance.

Table 1: Statistics of the test

	Sample	Groups size	Mean	Std.	Std.
				Deviation	Error
test	Experimental	30	06.23	1.803	0.341
	Group				
Pre	Control	30	05.89	1.718	0.325
	Group				
Post – test	Experimental	30	08.65	0.763	0.144
	Group				
	Control	30	06.21	1.474	0.279
	Group				

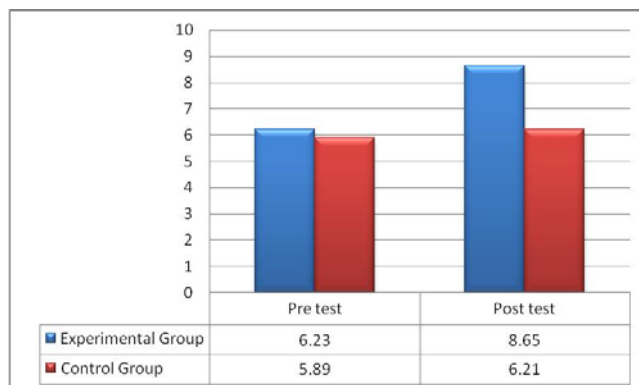


Chart -1: Comparison of mean value of Pre-Test and Post-Test

The mean scores of the first test for both groups show that the two groups didn't differ at the beginning of the experiment, but after the treatment the mean score of the experimental group, show their higher level compared to the control group.

6. CONCLUSIONS

The results show that the students, who practiced yoga performed better in academics. The study further shows that low-stress students performed better than high-stress students, meaning thereby that stress affects the students' performance.

REFERENCES

- [1] Hans Selye (1956). The stress of life. MC Graw Hill, New York, pg. 523-567.
- [2] Dehaan RL, Venkatnarayan KM (2008). Education for innovation. Rotterdam: Sense Publishers, pg. 13-14.
- [3] Vivekananda S. Raja Yoga (34th Impression) Advaita Asrama, 2007.
- [4] Madanmohan Role of Yoga and Ayurveda in Cardiovascular Disease. [Last accessed on 2011 Sept 11]. Available from: <http://www.fac.org.ar/qcvc/llave/c039i/madanmohan.php>.
- [5] Kirkwood G, Rampes H, Tuffrey V, Richardson J, Pilkington K, Ramaratnam S. Yoga for anxiety: A systematic review of the research evidence. Br J Sports Med. 2005;39:884–91.
- [6] Pilkington K, Kirkwood G, Rampes H, Richardson J. Yoga for Depression: The Research Evidence. J Affect Disord. 2005;89:13–24.
- [7] Michalsen A, Grossman P, Acil A, Langhorst J, Ludtke R, Esch T, et al. Rapid stress reduction and anxiolysis among distressed women as a consequence of a three month intensive yoga program. Med Sci Monit. 2005;11:555–61.
- [8] West J, Otte C, Geher K, Johnson J, Mohr DC. Effects of Hatha yoga and African dance on perceived stress, affect, and salivary cortisol. Ann Behav Med.2004;28:114–118.
- [9] Khatri D, Mathur KC, Gahlot S, Jain S, Agarwal RP. Effects of yoga and meditation on clinical and biochemical parameters of metabolic syndrome. Diabetes Res Clin Pract. 2007;78:e9–10.
- [10] Gokal R, Shillito L. Positive impact of yoga and pranayam on obesity, hypertension, blood sugar, and cholesterol: A pilot assessment. J Altern Complement Med. 2007;13:1056–7.

-
- [11] Selvamurthy W, Sridharan K, Ray US, Tiwary RS, Hedge KS, Radhakrishnan U, et al. A new physiological approach to control essential hypertension. *Indian J Physiol Pharmacol.* 1998;42:205–13.
- [12] McCaffrey R, Ruknui P, Hatthakit U, Kasetsomboon P. The effects of yoga on hypertensive persons in Thailand. *Holist Nurs Pract.* 2005;19:173–80.
- [13] Damodaran A, Malathi A, Patil N, Shah N, Suryavanshi, Marathe S. Therapeutic potential of yoga practices in modifying cardiovascular risk profile in middle aged men and women. *J Assoc Physicians India.* 2002;50:633–9.
- [14] Innes KE, Bourguignon C, Taylor AG. Risk indices associated with the insulin resistance syndrome, cardiovascular disease, and possible protection with yoga: A systematic review. *J Am Board Fam Pract.* 2005;18:491–519.
- [15] Shapiro D, Cook IA, Davydov DM, Ottaviani C, Leuchter AF, Abrams M. Yoga as a complementary treatment of depression: Effects of traits and moods on treatment outcomes. *Evid Based Complement Alternat Med.* 2007;4:493–502.
- [16] Gupta N, Shveta K, Vempati R, Sharma R, Vijlani RL. Effect of yoga based lifestyle intervention on state and trait anxiety. *Indian J Physiol Pharmacol.* 2006;50:41–7.