

## Effect of yogic intervention: Pranayama on stress

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### Abstract

An attempt has been made to study the effect of Yoga: Pranayama on Stress. A purposive sample of 120 persons (60 males & 60 females) was selected and a pre and post control group design was used. Life style questionnaire (referred in introducing health Psychology) & 'Eight State Questionnaire' by Curran & Cattell, Indian adaptation by Shri Malay Kapoor New Delhi, Kapoor & Bhargava (Agra) were used as tools. An analysis of results shows that the yoga pranayama had positive effect in the management of stress as well as in creating positive image about oneself in the experimental group while control group didn't show any significant difference.

**Key words:** Yoga: Pranayama, Stress

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### Introduction:

Yoga is one of India's greatest gifts to the world. It has been practiced in India since times immemorial. It is a combination of religion, philosophy and physical culture into one complete science. Yoga is a movement based on form of relaxation and meditation that combines physical postures, exercises and breathing to promote physical mental and spiritual well being. In yoga, breath work is known as Pranayama. Pranayama comprises 'Poorak', 'Kumbhak', & 'Rachek' which means inhalation & exhalation with the arrest of breathing process internal & external. By regular practice of Pranayama, pran shakti is being distributed through the body and invigorates all the seven charkas, purifies the mind and streamlines all the systems of the body thereby increasing the longevity. There are various types of Pranayama to be performed as per the bases of need & season. Long & deep breathing, bhastrika, kapalbhati, agnisar, anulom-vilom, bhramri, ujjayi, sheetli, nadishodhan are quite prominent. Yoga improves fitness, lowers blood pressure, promotes relaxation and self- confidence, and reduces stress and anxiety. People who practice yoga tend to have good coordination, posture, flexibility, range of motion, concentration, sleep habits and digestion. Yoga is a complementary therapy that has been used with conventional therapies to help treat a wide range of health problems but it is not, in and of itself, an effective cure for any particular disease.

Yoga is an ancient Indian science and way of life which brings about relaxation and also induces a balanced mental state. Yoga: Pranayama is our personal physician (**Swami Ramdev**). As a holistic system, yoga deals with the body, mind and behaviour in a synergistic way. In Pranayama techniques like kapalbhati is with a specific purpose of cleansing the skull region and make it to shine with ample supply of oxygen (**Saraswati, 1985**). The word Pranayama is a combination of two Sanskrit words. Prana+ayama which means expansion of vital energy. According to these texts vital energy is

absorbed in subtle form through breathing and in Pranayama this vital energy is expanded. This information that Pranayama enhances oxygen supply to the head which is received from classical texts has been subjected to empirical testing and it was reported that during Pranayama oxygen consumption has increased as compared to normal breathing (**Karambelker, Deshpande, Bhole, 1982**)

Yoga: Pranayama refers to union between body and mind or body, mind and spirit. The traditional connotation of yoga is union between the jivatma and parmatma that is between one's individual consciousness and the universal consciousness therefore yoga refers to a certain state of consciousness as well as to methods that help one reach that goal or state of union with the divine.

The present world is experiencing the accelerating speed of the modern illness: stress. According to stress researcher, **Lazarus**, stress begins with the appraisal of the situation. Almost every system in the body is affected by stress. The key for management of stress is the positive evaluation of the situation. This is possible through yoga. Yoga is a way of life. Yoga considers a human being as a whole-body, mind and spirit together. Disintegration of this personality leads to 'stress'. Yoga aims at harmonizing the physical, mental & spiritual aspects of the personality. Yoga is found to be a holistic method to restore balance of physical, mental and spiritual energy where as stress (distress) is more likely to be the cause of imbalances. **Udupa (1985)** carried out research on patients of stress related disorders like hypertension, cardiovascular disorders, asthma, hypothyroidism and found beneficial effects of some yogic practices taught to these patients. Positive effects of some yogic practices on stress related problems and their reduction has been shown by many other studies too (**Udupa, 1985 Nagendra, 1988**).

**Swami Ramdev, Yog synergy in medical science, (2007)** revealed that yoga and

Pranayama are not merely physical exercises but they strongly influence our consciousness. Yoga and Pranayama have a direct positive impact on our thinking. Yog and Pranayama have also led to lot of reduction in stress levels. The present life style and stress has adversely affected memory power of lot of people and they also got a chance to rejuvenate after coming into the shelter of Yog. During the survey some results were seen on mental stress and thinking processes. The results of the survey revealed that Yog and Pranayama have proved to be a blessing for the people suffering with mental stress even in the present modern world. A brief review of literature on the psychotherapeutic effects of yoga revealed that yoga has proven effective as a mode of treatment for psychological distress. It was shown that long term practitioners of yoga have a remarkable voluntary control over these autonomic processes, which helps them in coping with psychological distress (Rao, 1995). Prem Sahajpal and Rinpari Ralte, (2000) have shown very beneficial effects on quality of sleep,

reduction in stress level & improvement in self concept by IYRT (Induced Yogic Relaxation Training). Latha, D. and kaliappan, K.V. (1987) has suggested that they had a significant improvement in coping behavior. A training course in Yoga was found to have led to highly significant improvement in the subjects' mental health (Aminabhavi, 1996). Yogic meditation was also effective in reducing tension headache (Vasudevan, Mishra & Balodi, 1994).

Keeping the above studies in mind an attempt has been made to study the effect of Yogic Intervention: Pranayama on stress.

**Research methods:**

**Objective:** To study the Effect of Yogic Intervention: Pranayama on Stress.

**Participants:** Keeping the nature of study in mind a purposive sample of 120 persons (60 males and 60 females) was taken from the sub urban area of Baraut.

**TABLE-1**

**Showing the Sample of Subjects of Experimental & control group-**

GENDER	EXPERIMENTAL GROUP	CONTROL GROUP	AGE GROUP	NO. OF SUBJECTS
MALE	YOUNG ADULT	YOUNG ADULT	20-30	30
	ELDERLY ADULT	ELDERLY ADULT	40-50	30
FEMALE	YOUNG ADULT	YOUNG ADULT	20-30	30
	ELDERLY ADULT	ELDERLY ADULT	40-50	30

**Total No. of Subjects of Experimental Group = 60**

**Total No. of Subjects of control Group = 60**

**Total No. of the Subjects = 120**

**Sampling and research design:**

The present study followed a pre and post control group design. As part of the design, the study used an attention control condition, according to which control subjects were given only research attention, while the treatment group actively participated in the intervention programme. In this study Yoga: Pranayama was

taken as independent variable & stress was taken as dependent variable.

In this present study our sampling technique was purposive. We needed the subjects who are conscious about their health and for this purpose we selected 120 subjects. The data collection was done in three stages.

**Tools: 'Life style questionnaire'** (referenced in 'Introducing Health Psychology') which contain

40 items & 'Eight State Questionnaire' by Curran & Cattell, Indian adaptation by Shri Malay Kapoor, New Delhi and Kapoor & Bhargava, AGRA, (1990) was used for measuring stress. **The Eight State Questionnaire (8SQ)** was designed specifically for measuring eight important emotional states and moods (**Cattell & Curran, 1973**).

**Sample:** The study was completed in three steps. In the first step the 'Life Style Questionnaire' was to be filled up by subjects. The subjects scoring in the first two categories were chosen and the 'Eight State Questionnaire' was administered & after the scoring we chose only those subjects who were either in average category or high category. In the third step we have checked some physical tests of the subjects as B.P., Weight, Sugar & Cholesterol. In this final step, subjects who were normal in all the tests were chosen and further, we divided our subjects to two groups: Experimental Group and Control Group. In Experimental group, we included those subjects who agreed with our conditions. After the selection of 120 subjects we started our study. We had two groups: Experimental Group and Control Group.

Thus after a great struggle we selected our subjects for our research procedure.

**Research Procedure:** After selecting the 120 subjects, they were divided in two groups:-

- (1) Experimental Group
- (2) Control Group

**(1) Experimental Group:**

In this group the 'Eight State Questionnaire' was to be filled four times by the subjects for three months (Pre-Position, after first month, after two months & after three months). We trained the subjects for Yogic Intervention i.e. Pranayama the procedure was as under:

**Training:** Every subject had to do Pranayama in the early morning or at least with a gap of 4 to 5 hours after taking his meals. The duration was

20-25 minutes. We had used the package of Pranayama of seven breathing exercises as suggested by Swami Ramdevji: **The Seven Breathing Exercises of this package are as follows:** Bhastrika, Kapalbhata, Bahya Pranayama (with tribandh), Anulom-Vilom, Bhramri, Udgeet 'Omkar Japa', Pranav Pranayama (Meditation of Om with Breathing). The research scholar has been trained in Patanjali Yogpeeth, Haridwar under the supervision of Swami Ramdev. So we tried to train the subjects by right method and the subjects were asked to follow the procedure strictly at least one time for 20-25 minutes. Thus the study was conducted for three months. The members of the experimental group were observed everyday for three months.

**(2) Control Group:**

In this group also our research procedure was for three months. The 'Eight State Questionnaire' was filled by the subjects four times i.e. we used to take back the filled booklets every month from the subjects. We had not given training of Yogic Intervention: Pranayama to the subjects of control group. We applied all conditions of filling up the questionnaire as was done in experimental group.

**Data analysis:** The responses of the two groups (experimental & control) were analyzed by using the statistical procedures of **Mean, S.D. & 't' ratio** as shown in table 2.

**Results and discussion:** The purpose of the present study has been to investigate the effect of Yogic Intervention: Pranayama on stress. The present study comprises of one independent variable called Yoga: Pranayama & the other dependent variable, Stress. The dependent variable (Stress) has been symbolized as, (ST) having four distinct categories viz. Stress-Pre-Position, after one month, after two months & after three months they are symbolized as (ST1), (ST2), (ST3) & (ST4) respectively.

**TABLE -2**  
**Mean, SDs and 't' value on Stress by Experimental and Control group.**

VARIABLE		EXPERIMENTAL GROUP [N=60]		CONTROL GROUP [N=60]		df	t-VALUE
		MEAN	S.D.	MEAN	SD		
STRESS	ST1	19.76	2.29	19.60	2.37	118	.39 (N.S.)
	ST2	17.43	1.45	19.41	2.72	118	4.97***
	ST3	14.30	1.44	18.86	2.19	118	13.46***
	ST4	9.21	1.43	19.06	2.08	118	30.15***

\*\*\*significant at .001 level; \*\*significant at .01 level; \*significant at .05 level

Table (2) shows the Mean, SDs and t value of experimental & control group. In stress-pre position (ST1), there was not any significant difference between experimental & control group. The obtained scores between experimental & control group in after one month (ST2), after two months (ST3) & and after three

months (ST4), was highly significant. In other words, the obtained results show that there is a positive effect of Pranayama on stress in the experimental group but control group did not show any significant difference from pre position till three months.

**Figure showing the mean scores of stress.**

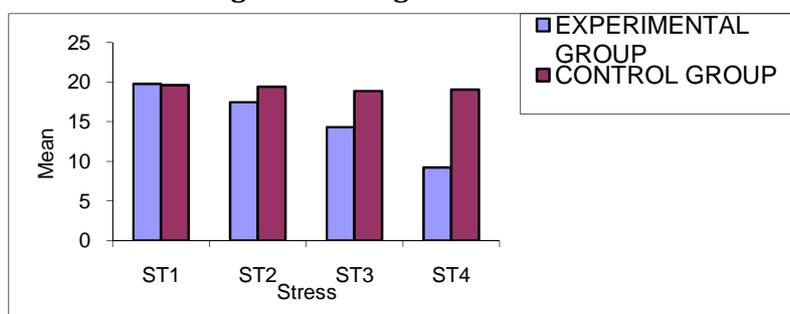


Figure shows mean scores on stress by experimental & control group. The inter group comparisons among the four stages of the experimental group were found to be statistically significant as a result of Pranayama while the inter group comparisons among the four stages of the control group didn't differ significantly. In other words Pranayama has positively affected the experimental group.

The results obtained in the present study support the findings that effect of Yogic Intervention: Pranayama on stress. The results

also indicate that yoga: pranayama improves our mental energy and gives us positive mental health. Observing the results in present study it may be said that there is positive effect of yoga: pranayama on stress. As suggested by (Udupa, 1985, Nagendra & Nagarathna, 1988, Subrahmanyam, 1988, Sahajpal & Verma, 1993 Sahajpal &Khanna, 1994). The results in the present study support their idea that beneficial effect of yogic intervention for stressed persons. Some other studies also have worked with yogic intervention effects on 'quality of sleep' and

sleep disturbances. Knowing the vast adverse impact of poor sleep quality and sleep deprivation on personality and behavior (Keclund et al., 1997, Ohayon, et al., 1997, Labbate, et al.1998). The same type of results suggested by yoga therapy group subjects have not only benefited psychologically but their physiological responses also improved. The change in outlook in perceiving day-to-day problems, effectively dealing with them may be attributed to the yoga training. On the other hand control group subjects showed no such improvement. Actually they reported more symptoms, didn't show any reduction in stress perceptions and their coping responses were not adaptive. The findings support the view held by earlier studies on yoga therapy and its psychological benefits (Vahia, 1969, Naug, 1975, Datey, 1969).

**Medical claims** by several researchers have shown that Pranayama techniques are beneficial in treating a range of stress related disorders, improving autonomic functions, relieving symptoms of asthma, and reducing the signs of oxidative stress. Practitioners report that the practice of Pranayama develops a steady mind, strong will-power, and sound judgment, & also claim that sustained Pranayama practice extends life & enhances perception. Now there is a question how it works. We know that all thoughts, memories and interpretations emanate from the cerebral cortex, and emotions are accompanied by perceptual appraisal. Thus experience of an emotion takes the following course: perceptual appraisal of a value-laden internal or external event by the cerebral cortex, which sends signals to the limbic system, which in turn activates the ANS. This chain of reactions results in the experience of an emotion (Nurenberger, 1986).

Pranayama through its moderating effect on the autonomic tone induces both physical and mental relaxation and reduction in emotional arousal. The intensity and frequency of negative emotions, such as anger, hostility, hopelessness, etc., can thus be controlled through the practice of Pranayama.

With Pranayama we can make major part of the air present in the lungs active in the breathing cycle. If the residual air in the lungs gets purified, the food is digested properly, the body organs become strong, and the body as a whole is cleaned. Whatever food we eat comes in contact with oxygen that is inhaled in the process of respiration. The oxidation process yields several important compounds that are useful for the body. The carbon present in the food becomes carbon dioxide. It mixes with nitrogen, and other elements present in the food and is thrown out when we exhale. Phosphorous present in the food comes in contact with oxygen and becomes phosphate, which builds bones in our body. Further as Iyengar (1998) observes regular practice of various Pranayama will promote mental calm and concentration, which resembles a state of meditative relaxation.

Individuals under stress often experience fast, shallow breathing. This type of breathing known as chest breathing, can lead to 'shortness of breath', increased muscle tension inadequate oxygenation of blood and fatigue. Breathing exercises can both improve respiratory function and relieve stress and fatigue. The very essence of Yog and Pranayama lies in attaining mental peace, improved concentration powers, a relaxed state of living and harmony in relationship. Through the Practice of Yog and Pranayama, we become aware of the interconnectedness between our emotional, mental and physical levels. Gradually this awareness leads to an understanding of the more subtle areas of existence. Practice of Pranayama, Yoga and meditation controls the limbic hypothalamus axis. This reduces the anxiety and reduces the high level of stress hormones present in the blood. It also increases the level of beneficial hormones like adrenaline and encephalin. These two hormones have positive effect on our body and strengthen the immunity system. The body gets the ability to protect itself from

diseases and does not allow the entry of infections and other contagious diseases.

Thus the present study on the one hand helps to confirm the previous results starting the positive effect of Yoga: Pranayama on stress and on the other hand it suggests that one can practice Yoga: Pranayama in the present day society without deviating from the basic principles. This makes an individual think and lives in a positive way. This helps him to address the life challenges without distress. But whether we use yoga for spiritual transformation or for stress management and physical well-being, the benefits are multiple and amazing, if practiced regularly and with faith.

From the above discussion it may be concluded that there is a positive effect of Yogic Intervention: Pranayama on stress. It may also be said that Yoga: Pranayama provides us perfect physical, social and psychological well-being even under stressful conditions.

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