

## Effect of Yogic Intervention: Pranayama on Anxiety & Depression

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### ABSTRACT

An attempt has been made to study the effect of Yoga: Pranayama on Anxiety & Depression. 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 Anxiety & Depression as well as in creating positive image about oneself in the experimental group while control group didn't show any significant difference.

**Keywords:** *Yoga: Pranayama, Anxiety & Depression*

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

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itself, an effective cure for any particular disease. Some forms of yoga were found to have significant anti depressant effects (**Murthy et al. 1998**).

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.

**Anxiety** is a mood state characterized by marked negative affect and somatic symptoms of tension in which a person apprehensively anticipates future danger or misfortune (**Barlow, 1988**). This is also the DSM-IV definition (**American Psychiatric Association, 1994**). Anxiety is a state of uneasiness and apprehension, as about future uncertainties. According to the **U.S. Surgeon** general, 13 percent, or over 6 million children, suffer from anxiety, making it the most common emotional problem in children.

Anxiety is often described as having cognitive, somatic, emotional and behavioral components [**Seligman, Walker & Rosenhan, 2001**]. The cognitive component entails expectations of a diffuse and uncertain danger somatically the body prepares the organism to deal with threat [known as an emergency reaction]: blood pressure and heart rate are increased, sweating is increased, blood flow to the major muscle groups is increased and immune and digestive system functions are inhibited. Externally, somatic signs of anxiety may include pale skin, sweating and trembling. Emotionally, anxiety causes a sense of dread or panic and physically causes nausea, and chills. Behaviorally, both voluntary and involuntary behaviors may arise directed at escaping or avoiding the source of anxiety. These behaviors are frequent and often maladaptive, being most extreme in anxiety disorders. However, anxiety is not always pathological or maladaptive: It is a common emotion along with fear, anger, sadness and happiness and it has a very important function in relation to survival.

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We can say that conflict and other types of frustration that block the individual's progress toward a goal provide one source of anxiety. Threat of physical harm, threats to one's self-esteem and pressure to perform beyond one's capabilities also produces anxiety.

A variety of theories exists on the nature of psychological causes of anxiety. For example, Freud saw anxiety as the psychic reaction to danger surrounding the reactivation of an infantile fear situation. Behaviorally oriented theorists view anxiety as a product of early classical conditioning or other forms of learning such as modeling (**Bandura, 1986**).

Depression is the state of helplessness and hopelessness with a feeling of loneliness and poor self-image. It is an affective disorder characterized by a disturbed mood or feeling. Depression affects physical, mental and emotional well being. In the fourth edition of the **Diagnostic and Statistical Manual of Mental disorders (DSM-IV)**, the presence of depressed mood or sadness, or loss of pleasure in life, is an important diagnostic criterion for depression. Daily fatigue, lack of energy, insomnia and hypersomnia are indicators of a depressed mood. Some researchers report that 89% of people with depression feel fatigue. Depressed persons typically experience high levels of anxiety and intense anger that is turned inward, resulting in feelings of low self-esteem, hopelessness and thoughts of death.

The key for management of anxiety & depression 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 negative mood states. 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 anxiety is more likely to be the cause of imbalances.

**Verma (1997)** reported that yoga practice was as effective as drug therapy in treating psychological disturbance. The effect of yoga practice lasted for over two years with signs of continuing improvement and in addition to alleviation of ill health; there was also a positive sense of well-being which was not observed in drug therapy.

**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).

**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 negative mood states. The present life style and anxiety has adversely affected memory power of lot of people and they also got a chance to rejuvenate after coming into the

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shelter of Yog. During the survey some results were seen on thinking processes. The results of the survey revealed that Yog and Pranayama have proved to be a blessing for the people suffering with mental anxiety & depression even in the present modern world. Yog and pranayama improves concentration power. As a result the memory power increases. 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).

Yoga therapy group subjects are not only benefited physiologically but their psychological responses are also improved. The findings support the view held by earlier studies on Yoga therapy and its psychological benefits (Vahia, 1969, Naug, 1975, Datey, 1969). Latha, D. and kaliappan, K.V. (1987) have suggested that they had a significant improvement in coping behavior. It is suggested that YT is superior to drug therapy in controlling headaches. N. Jhansi Rani (2002) investigated the practice of a specific yogic procedure that enhances oxygen supply to the head will improve one's performance on a cognitive task.

A training course in Yoga was found to have led to highly significant improvement in the subjects' mental health (Aminabhavi, 1996). Some forms of Yoga were found to have significant antidepressant effects (Murthy et al. 1997). Yogic meditation was also effective in reducing tension headache (Vasudevan, Mishra & Balodi, 1994). It was also found that distressing physiological and psychological changes during the course of menstrual cycle could also be reduced with the help of Yoga practice (Sridevi & Rao, 1998).

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

### METHODOLOGY

#### *Objective*

- To study the effect of Yogic Intervention: Pranayama on anxiety & depression.

#### *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.

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*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 & anxiety & depression were 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**

1. **'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 anxiety.
2. **The Eight State Questionnaire (8SQ)** was designed specifically for measuring eight important emotional states and moods (**Cattell & Curran, 1973**). The theoretical importance of measuring emotional states lies in the fact that any prediction of how a person will act or how he will perform depends as much on his present state as on his usual trait. An alert individual of average intelligence may perform better on an intellectual task than a tired genius. The practical importance of mood state measures is evident in such areas as drug research, studies of morale, evaluation of classroom conditions, directing a course of therapy, etc. The Eight State Questionnaire (8SQ) contains 96 items, 12 of which measure each state. These Eight mood states are- Anxiety, Stress, Depression, Regression, Fatigue, Guilt, Extraversion & Arousal.

### **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

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'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 , Kapalbhati , 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.

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### 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 anxiety & depression. The present study comprises of one independent variable called Yoga: Pranayama & the other dependent variables- anxiety & depression. The dependent variable (anxiety) has been symbolized as, (AN) having four distinct categories viz. Anxiety - Pre-Position, after one month, after two months & after three months they are symbolized as (AN1), (AN2), (AN3) & (AN4) respectively. The dependent variable (Depression) has been symbolized as, (DE) having four distinct categories viz. Depression -Pre-Position, after one month, after two months & after three months they are symbolized as (DE1), (DE2), (DE3) & (DE4) respectively.

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

VARIABLE		EXPERIMENTAL GROUP [N=60]		CONTROL GROUP [N=60]		df	t-VALUE
		MEAN	S.D.	MEAN	SD		
ANXIETY	AN1	19.97	3.01	19.55	3.11	118	.75 (N.S.)
	AN2	15.50	2.18	19.13	2.99	118	7.60***
	AN3	9.25	2.49	19.00	3.32	118	18.17***
	AN4	2.63	1.57	19.65	3.09	118	38.01***

\*\*\*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 anxiety -pre position (AN1), there was not any significant difference between experimental & control group. The obtained scores between experimental & control group in after one month (AN2), after two months (AN3) & and after three months (AN4), was highly significant. In other words, the obtained results show that there is a positive effect of Pranayama on anxiety in the experimental group but control group did not show any significant difference from pre position till three months.

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**Figure [1] showing the mean scores on anxiety**

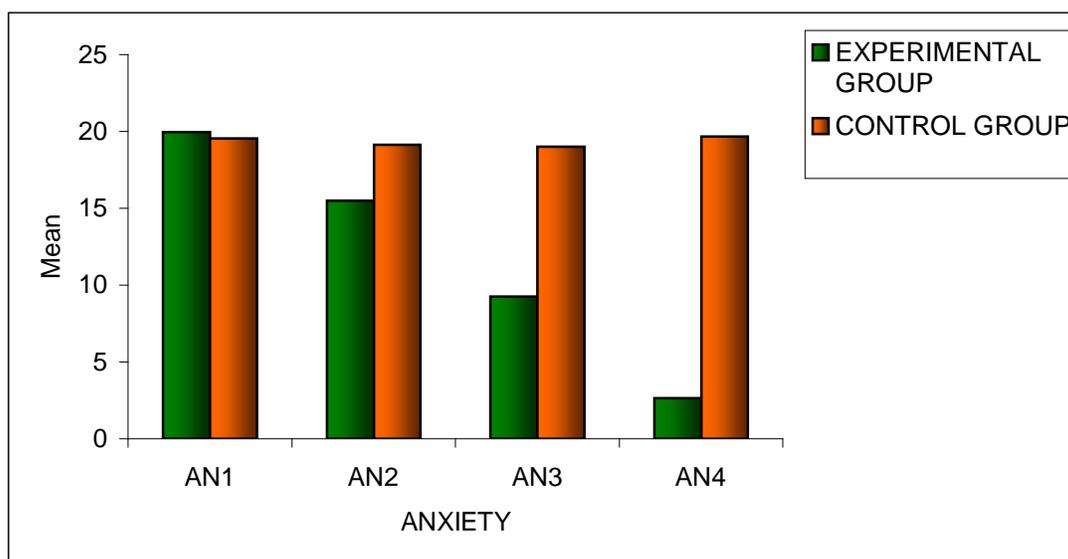


Figure 1 shows mean scores on anxiety by experimental & control group. The inter group comparisons among the four stages of the experimental group were found to be statistically significant as a result of Pranayama while the inter group comparisons among the four stages of the control group didn't differ significantly. In other words Pranayama has positively affected the experimental group.

**Table -3 Mean, SDs and 't' value on Depression by Experimental and Control group.**

VARIABLE		EXPERIMENTAL GROUP [N=60]		CONTROL GROUP [N=60]		df		t-VALUE
		MEAN	S.D.	MEAN	SD			
DEPRESSION	DE1	18.58	2.31	18.38	2.10	118	.49 (N.S.)	
	DE2	14.65	1.90	18.11	3.09	118	7.40***	
	DE3	11.20	2.01	19.53	2.56	118	19.78***	
	DE4	7.26	1.63	17.85	1.51	118	36.76***	

\*\*\*significant at .001 level

\*\*significant at .01 level

\*significant at .05 level

Table (3) shows the Mean, SDs and t value of experimental & control group. In depression- pre position (DE1), there was not any significant difference between experimental & control group. The obtained scores between experimental & control group in after one month (DE2), after two months (DE3) & and after three months (DE4), was highly significant. In other words, the obtained results show that there is a positive effect of Pranayama on depression in the experimental group but control group did not show any significant difference from pre position till three months.

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*Figure [2] showing the mean scores on depression.*

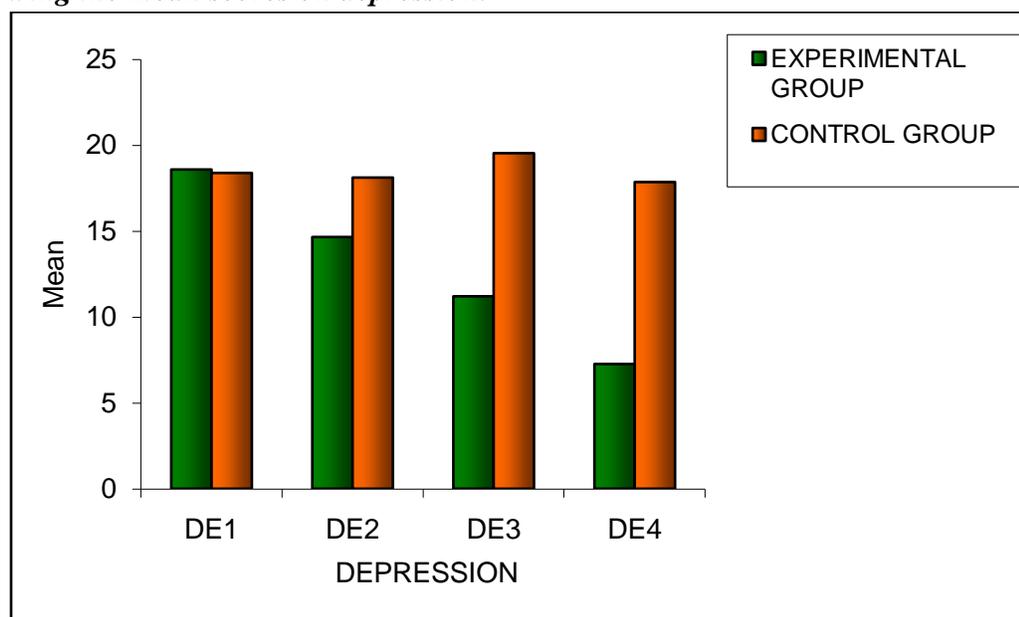


Figure 2 shows mean scores on depression by experimental & control group. The inter group comparisons among the four stages of the experimental group were found to be statistically significant as a result of Pranayama while the inter group comparisons among the four stages of the control group didn't 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 Anxiety & depression. 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 positive effect of yoga: Pranayama on Anxiety & depression. 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). As Bud (1993) studied the positive and negative mood and

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mental & physical energy in 71 normal volunteers. He concluded that Pranayama increases the mental, physical energy and gives a feeling of zeal more than the other two methods. Therefore, 30 minutes of yogic and respiratory practice has a special strengthening effect on mental and physical experience and increases the high positive mood. Simple relaxation tools, such as deep breathing & relaxing imagery, can help calm down angry feelings (**American psychological Association, December 4, 2007**). A spiritually based intervention programme decreased anxiety and depression (**Rajagopal, Mackenzie, Bailey & Lavizzo-Muourey, 2002**). Yoga therapy group subjects are not only benefited physiologically but their psychological responses are also improved. The findings support the view held by earlier studies on Yoga therapy and its psychological benefits. (**Vahia, 1969, Naug, 1975, Datey, 1969**)

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.

Yet another effect of Pranayama on the psychological level is in inducing stillness of mind. Mind is a chatterbox with streams of thoughts about the present, past and future. Yoga likens this nature of the mind to a horse without reins. The fixations of attention on the breathing process during Pranayama help the practitioner stop this chatter immediately. The cessation of thoughts is a preliminary step towards meditation.

The Practice of Pranayama leads to greater O<sub>2</sub> supply to the blood stream and CO<sub>2</sub> drainage. As a result, greater amount of oxygen is available for cerebral metabolism. Further as **Iyengar (1977)** observes regular practice of various Pranayama will promote mental calm and concentration, which resembles a state of meditative relaxation. As **Jenvinget et al. (1992)** concludes, mental and physical relaxation leads to an integrated physiological response in which blood is redistributed to the effect of providing greater supply to the cerebral cells. All these physiological effects will have an enhancing effect on cognitive functioning.

**According to Medical Scientists**, Yog and Pranayama therapy is successful because of the balance created in the nervous and endocrine systems which directly influences all the other systems and organs of the body. Yog and Pranayama act both as a curative and preventive therapy.

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.

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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. **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.

Thus the present study on the one hand helps to confirm the previous results starting the positive effect of Yoga: Pranayama on Anxiety & depression and on the other hand it suggests that one can practice Yoga: Pranayama in the present day society without deviating from the basic principles. These make an individual think and live in a positive way with a philosophical view. This helps him to address the life challenges without distress.

But whether we use yoga for spiritual transformation or for the management of Anxiety & depression and physical or social 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 Anxiety & depression. 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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