

# The Effect Of Yogic Breathing Technique On Selected Motor Function In Occupational Stress Patients

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## ABSTRACT

Work related psychological stressors are known to affect the body functions through physiological processes, and influence mental health as well as physical health.

Yoga is the most efficient non pharmacological measure and scientific method for the prevention and control of mind and all its fluctuations.

Therefore, present study was conducted to evaluate motor function responses to one month yogic breathing practices of persons who underwent work related psychological stressors. Twelve female subjects between 25 to 45 years (average 36.2 – 4.2), who had no history of other major illnesses, were selected for the study. At the initial visit, a detailed medical history and symptomatic evaluation was done.

This group had a higher rate of respiration and irregular breath pattern, increased heart rate and slightly elevated blood pressure with symptoms of stress and anxiety. The heart rate, respiratory rate and pattern, body weight, blood pressure and blood glucose level were recorded.

Parameters were assessed at the beginning and end of the month. These patients showed a significant decrease of heart rate, respiratory rate, diastolic blood pressure, blood sugar level and body weight and highly significant in increasing baseline breathing holding time. There were significantly reducing various stress symptoms observed after the therapy.

These results suggest that the selected breathing technique have a marked stimulating effect on parasympathetic nerve system or relaxing effect on sympathetic nervous system.

**Key words:** *yogic breathing, parasympathetic nerve system, sympathetic nervous system*

## 1. INTRODUCTION

Stress is the major challenge in this scientific and technical era, which has captured numerous headlines across the world and rightly so. Among type of stress work related psychosocial stressors is one of the most important problems in the present world especially in developed countries. . Stress is reported to cost employers US\$120 Billion p.a. in North America and Europe, 200 million lost production days in the US and the European Union spends approximately 4% of GNP on mental health problems.

Occupational stress should not be viewed as a negative by-product of work-life. A certain level of stress is definitely beneficial to individual and societal growth. This level of stress allows employees to cope and

overcome obstacles ensuring more productive and efficient output. However it is said that, continuous exposure to work place stress could have a significant impact on employee well being, both physical and psychological. Organizations are appreciating the importance of managing stress to the bottom line in terms of improved productivity, through fewer days lost due to accidents, improved moral, team work, enthusiasm, improved reputation, lower incidence of compensation claims etc. The majority of organizational interventions are related to providing external/internal support systems rather than improving internal practices e.g. implementing high performance work systems, which embody empowerment, involvement, and ownership providing employees with a sense of control over their own output.

Stress is studied and understood at the physical body level by modern medicine as an imbalance of the neuro- endocrine system and the neuro-transmitter level. In modern science the mental health care of the patients is mainly based on pharmacological treatment, rather than non pharmacological treatment like psychotherapy

Yoga is an ancient Indian science, the most efficient non pharmacological measure and scientific method for the prevention and control of mind and all its fluctuations (Taimini, 1961). Yogic practices which were well conceived and described by ancient Indian authors prove to be of great value even today.

Two studies on a practicing yoga breathing (ujjayi pranayama) reported increases in oxygen consumption by 19% and 9% , respectively during the practice of yoga (Miles, 1964; Rao, 1968).

Ancient yogic texts have described slow regulated breathing practice, particularly through alternative nostrils (Nadisuddhi pranayama) which also to calms down body and mind functions (Funderburke, 1977).

Hence the present study aimed at analyzing the motor functions of the body, related to the practice of Nadishudhi pranayama breathing technique.

## 2. METHODS

There were 12 female subjects, with ages ranging from 25 to 45 years, from the Japanese community, them who had work related psychological stress condition, while none had a history of other major illnesses, selected for the study. Routine medical examinations were concluded. The study was explained to the patients and their signed informed consent was taken.

Patients were given a structured-questionnaire which consists of two sections. The first section consists of the demographic variables of the subjects and the second section consists of closed-ended questions to assess the clinical features of stress condition.

Baseline assessment was carried out on twelve patients. Subsequent follow-up assessments were carried out after one month. During this period all 12 patients practice 15 minutes Nadishudhi pranayama breathing technique every day just before the sleep and morning 5.30.

The patients were assessed by following parameters: forced expiratory volume in 1 sec (FEV ), Forced vital capacity (FVC), both recorded using (Vitalograph Ltd.,U.K.), ECG (lead 1) to derive heart rate by counting successive QRS complexes, using a clinical electrocardiograph , body weight, Breath holding time and Blood pressure. All assessments were repeated twice on each subject initially twice after one month. Both recording were made on the same day. The timings of the initial recordings and the final recordings were also kept the same.

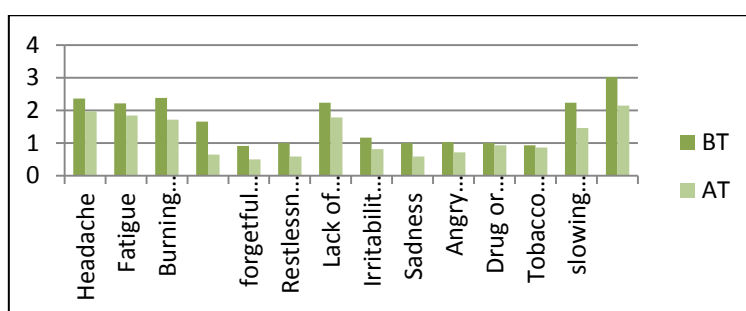
### 3. RESULTS

#### 3.1. Socio-Demographic Profile of Stressed Subject

Stressed Subjects		Females
<b>No of Subjects</b>		12
<b>Age</b>		25 - 45
<b>Locality</b>	Urban	12
	Rural	0
<b>Dietary Habits</b>	Vegetarian	0
	Non vegetarian	12
<b>Habit</b>	Smoking	2
	Alcoholic consumption	7
<b>Economic Status</b>	Low	0
	Middle	9
	High	3
<b>Education Status</b>	O/L	0
	A/L	7
	Degree	5
<b>Family History</b>		5
<b>Occupation</b>	Own Business	5
	Doctors	1
	Other Executives	6

#### 3.2. Results of clinical symptoms in stress subjects

SYMPTOMS	MEAN SCORE		% Relief
	BEFORE THE THERAPY	AFTER THE THERAPY	
Headache	2.36	1.97	16.53
Fatigue	2.21	1.84	16.74
Burning sensation of Abdomen	2.38	1.71	28.15
Sleep problems	1.65	0.65	60.61
forgetfulness	0.91	0.50	45.05
Restlessness	1.00	0.59	41.00
Lack of motivation or focus	2.23	1.78	20.00
Irritability or anger	1.16	0.81	30.17
Sadness	1.00	0.59	41.00
Angry outbursts	1.03	0.71	31.07
Drug or alcohol abuse	1.00	0.93	7.00
Tobacco use	0.93	0.86	7.00
slowing of movements	2.23	1.46	34.52
Social withdrawal	3.02	2.14	0.29



### 3.3. Baseline data of the subjects were compared using the paired t-test

No	Parameters	Baseline values	Values after one month yogic breathing practice
1	Heart rate	81.02 ± 1.44	74.06 ± 1.22*
2	Respiratory rate	20.04 ± 0.53	15.02 ± 0.12*
3	Breath holding time	33.02 ± 1.01	47.03 ± 1.42***
4	FEV	2.02 ± 0.05	2.56 ± 0.06**
5	FVC	2.42 ± 0.10	3.56 ± 0.08***
6	Blood pressure Systolic BP Diastolic BP	138.02 ± 3.05 96.16 ± 2.09	124.56 ± 2.53* 86.16 ± 2.34**
7	Body weight	58.77 ± 2.18	58.26 ± 1.00*
8	Blood sugar (FBS)	120.42 ± 4.53	111.02 ± 5.12*

\*= P<0.05; \*\*=P<0.01; \*\*\*=P<0.001

Twelve female subjects between 25 to 45 years of age (average 36.2 – 4.2) were selected for the study. The socio demographic profile of selected subject has demonstrated that 100% of urban life style. Work related stressful conditions are involved in the etiopathogenesis of the disease, through which genetic heritage is also noticed.

Parameters were assessed at the beginning and end of the month.

All the patients were evaluated for clinical relief from individual symptoms stress and anxiety. They were also investigated for autonomic function of the body. The finding reported in this study shows that the clinical features of stress and anxiety improved significantly after the therapy.

Mild elevated blood pressure were found in stress subjects, which reduced significantly after following one month yogic breathing practice. These patients showed a significant decrease of heart rate and respiratory rate and highly significant in increasing baseline breathing holding time.

There was a significant increase in FEV and FVC.

The beneficial role of breathing practice is observed on blood sugar level and body weight also.

These results suggest that the selected breathing technique have a marked effect on Autonomic nervous system.

## CONCLUSION

The present study showed that the occupational stress patients who underwent one month yogic breathing practice showed significant improvement in general health.

There were significantly reducing various stress symptoms observed after the therapy. There was also evidence of decreased autonomic arousal and more of physiological relaxation.

These results suggest that the selected breathing technique have a marked stimulating effect on parasympathetic nerve system or relaxing effect on sympathetic nervous system.

This scientific study suggest that the practicing of yoga bring about a number of physiological and Biochemical changes in the body and rehabilitates various vital organs and make them functionally more

competent to resist the stresses. Regular practice of yoga appreciably improves the health of a person physically, mentally, socially as well as spiritually.

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