



EFFECT OF EIGHT WEEKS OF YOGIC INTERVENTION ON SELECTED BIOCHEMICAL AND PHYSIOLOGICAL VARIABLE AMONG COLLEGE STUDENTS

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Abstract

The purpose of the study was to find out the effects of yogic intervention on Biochemical and Physiological variables of female students, such as blood glucose, Vital Capacity, force vital capacity, force expiratory volume, peak expiratory flow rate. For the present study 20 female students of Lakshmbai National Institute of Physical Education Gwalior (M.P.) were selected randomly as the subjects for the study. The age of the subjects were ranging from 17-24 years. The variables selected for the present study were yogic training (independent variable), blood glucose and force vital capacity and forced expiratory volume in first sec, peak expiratory flow rate (dependent variables). The data was collected through the pre and post test. For the study single group design was used in which the pre test was taken prior to the yogic training and post test was taken after eight weeks of yogic training. For comparing pre and post test means of blood glucose and force vital capacity, forced expiratory volume in first sec, peak expiratory flow rate, descriptive analysis and paired t-test were applied at 0.05 level of significance. Significant difference were found among pre-post blood glucose and force vital capacity, forced expiratory volume in first sec, peak expiratory flow rate as the p value (0.002; 0.00; 0.00; 0.00) respectively which is less than .05. On the basis of the findings it was

concluded that the yogic intervention may be responsible for the improvement of selected biochemical and physiological variables.

Keywords: Yogic intervention, Blood Glucose Level, Forced Vital Capacity, Forced Expiratory Volume in first Sec and Peak Expiratory Flow Rate.

Introduction

Yogic techniques produce consistent physiological changes and have sound scientific basis (Chhina, 1974; Udupa and Singh, 1972). There are few reports on the effects of various pranayams i.e. yoga breathing on body functions (Pathale et al., 1978; Gopal et al., 1973). In philosophical terms, yoga refers to the union of the individual self with the universal self (Hadi, 2007). Asana and pranayama have been incorporated alongside Ayurvedic medicine as the basis of a system of medical therapy. Training to yoga respiration selectively increases the respiratory sensation, perhaps through its persistent conditioning of the breathing pattern (Florence et al., 2005). The overall performance is known to be improved by practicing yoga techniques (Upadhyay et al., 2008) and their effects on physical functions were reported (Hadi, 2007). Yoga breathing, or pranayama, is the science of breath control. Pranayama (breathing exercise), one of the yogic techniques can



produce different physiological responses in healthy individuals (Upadhyay et al., 2008). Yoga is the best lifestyle modification, which aims to attain the unity of mind, body and spirit through asanas (exercise), pranayama (breathing), and meditation. Meditation is a yogic process of providing deep rest to the system by allowing the mind to calm down to its basal states. It is often looked upon as a relaxation technique to be used for treating stress and stress-related illnesses. "Yoga" also refers to an inner science comprising of a variety of methods through which human beings can achieve union between the body and mind to attain self-realization. The aim of Yoga practice (sadhana) is to overcome all kinds of sufferings that lead to a sense of freedom in every.

Methodology

For the purpose of study total 20 under graduate female students were randomly selected from L.N.I.P.E Gwalior. The age of subjects ranged between 17-24 years. The group was given treatment through eight week training program which includes selected yogic practice. Following variables were selected Blood Glucose, Forced Vital Capacity (FVC), Forced Expiratory Volume in first second (FEV1), Peak Expiratory Flow Rate (PEFR) for analysing the impact of training.

Training protocol

Yogic practice classes were offered five times per week, for eight weeks. A practice was comprised of four main series of 45 minutes; each series had the same structure i.e. of 10 minutes. The practice was started with the Om chanting followed by four yogic interventions- Sun salutations, Asana, Pranayama and Meditation – Meditation with Om chanting.

Analysis of Data and Results

The data were analyzed by applying descriptive statistics and paired t-test were presented in Table-1 & Table 2.

TABLE: 1
MEAN AND STANDARD DEVIATION OF PRE-TEST AND POST-TEST RESULTS OF BIOCHEMICAL AND PHYSIOLOGICAL VARIABLES AMONG COLLEGE WOMEN

S. No.	Variables	Mean	S.D
1	Pre- Blood Glucose Level	89.6	8.86
	Post- Blood Glucose Level	82.6	7.96
2	Pre- Force Vital Capacity	2.99	.42
	Post- Force Vital Capacity	3.20	.50
3	Pre- FEVC in First sec	2.88	.41
	Post- FEVC in First sec	3.13	.45
4	Pre- Peak Expiration Flow Rate	361.85	40.48
	Post- Peak Expiration Flow Rate	409.25	53.70

Table 1 reveals that the mean and SD of pre and post test of blood glucose are 89.3 ± 8.6 and 82.6 ± 7.96 , force vital capacity 2.99 ± 0.42 and 3.20 ± 0.50 , force expiratory volume in first sec 2.88 ± 0.41 and 3.13 ± 0.45 , peak expiratory flow rate 361.85 ± 40.48 and 409.25 ± 53.72 respectively.

TABLE 2
PAIRED SAMPLE T- TEST OF YOGIC INTERVENTION ON SELECTED BIO-CHEMICAL AND PHYSIOLOGY VARIABLES AMONG COLLEGE WOMEN

S. No	Name of Variable	Mean	S.D	S.E.M	't' ratio
1	Pre-post Blood Glucose	6.7	8.32	1.86	3.60
2	Pre -post FVC	0.21	0.21	0.048	4.471
3	Pre- post FEV1	0.25	.25	0.06	4.46
4	Pre- post PEFR	4.74	46.80	10.46	4.53

Table: 2 revealed that there was significant differences among college woman of blood glucose level, force vital capacity, force expiratory volume in first sec and peak expiratory flow rate is 3.59, 4.47, 4.45 and 4.52 is more than the tabulated t value 2.06 for



19 degree of freedom at 0.05 level of significance.

Discussion of Findings

Result of this study revealed significant improvements in the selected variables due to yogic intervention on the selected group, when compared between pre and post test. Chinnaswamy (1992) also supported the above findings conducted a study on the effect of asanas and physical exercise on selected physiological and biochemical variables among school boys. D.A Birkel and L.Edgren,(2000) studied The Hatha Yoga: Improved vital capacity of the college students. Vital capacity of the lungs (functional lung volume) is a critical component of good health. Vital capacity is an important concern for those with asthma, heart conditions or lung ailments; those who smoke; and those who have no known lung problems. Nayar and Joshi (1975 &1992) who suggest that Yogic asanas and pranayama have been shown to reduce the physiological parameters such as resting respiratory rate and increase vital capacity, timed vital capacity, maximum voluntary ventilation, breath holding time and maximal inspiratory and expiratory pressures. M.S. Nayer (1975) Investigated the effects of Yogic exercises on human physical efficiency and recorded significant increase in VC, force expiratory volume, rate of respiration, blood Pressure, Mechanical efficiency maximum oxygen uptake capacity and MBC remained unaltered in all the 3 groups.

Conclusions

On the basis of findings of the study, the following conclusions may be drawn that the significant improvement was found in biochemical variable i.e. blood glucose level and

significant improvement was found in physiological variables i.e. force vital capacity, force expiratory volume in first sec and peak expiratory flow rate.

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