

Efficacy of Yoga Therapy in the Improvement of Lung Function Parameters

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ABSTRACT

The present work entitled “Efficacy of Yoga therapy in the improvement of Lung function parameters”. The study was conducted on 30 subjects at the department of Human Consciousness and Yogic Sciences, Mangalore University. These subjects divided into two groups, 15 subjects in experimental group, 15 subjects in control group. The subjects were divided into two groups based on sample random sampling between the age 21 and 56 years. The study was conducted for a period of 45 days. The present study reveals that the concerned variables of Lung Function Test have been rationalized in terms of the hypotheses that the Experimental group will outperform the control group due to 45 days of yogic interventions. The results could best depicted that, there is significant improvement at a level of significance $p < 0.05$ in FVC with a significant p value 0.001153, for FEV_1 $p = 0.000868$, Lung Age $p = 0.000552$. When Compared to the Experimental group, the Control group has not shown any such significant changes after the study. This reveals that the Experimental group has been benefited more in terms of various variables are concerned.

Key word: FVC, FEV_1 , Lung Age, yoga therapy

Introduction

Good health is one of the greatest resources for creativity and wealth. Health is not a static state – it is dynamic ever changing. We can never claim that we are always healthy but only that we are healthy at a particular moment. Health is like a live wire. Now we feel it, the sensation is energizing, the absence it is a state when the body and mind are dull and slow. Disease exists when there is an imbalance. Good health results from right diet, adequate physical activity and mind, which is stress free. The dramatic changes in our life style, sedentary way of working, wrong dietary habits, lack of physical activity, smoking and alcoholism leading to many psychological and psychosomatic problems.

Yoga therapy is the system that prevents and cures various diseases and disorders

through yogic practices. The yogic practices concentrates on purification of the body and mind, and through this integrated holistic approach one can overcome several kinds of afflictions in life. It was co-ordinated and organized into the system by Maharishi Patañjali. Sage Patañjali defines yoga as, systematic practice for purifying one’s mind, intellect and body. Yogic practices with their unique characteristics have an important impact on the physical and mental stability.

Objective:

To find out the impact of yoga therapy on lung functions.

Variables

Independent Variable : Selected Yogic practices

Dependent Variable : FVC, FEV₁ and Lung age

Hypotheses

The null hypotheses set was, “The yogic practices will not have a significant impact in the improvement of lung functioning”.

Materials and Methods

The present study was conducted to assess the effect of yoga therapy on lung functions of the individuals. 30 volunteer subjects with age group 21-56 years were randomly selected for the study. They were classified in to two groups i.e Experimental and Control with 15 subjects each. They were comparatively new to yogic practices. The Control group continued with normal lifestyle. The Experimental Group was offered selected yogic practices, six days per week at the department of Yogic Sciences, Mangalore University. This practical session had a standard sequence of Asanas, Pranayamas, and Relaxation Techniques, taking appropriate precautions. A Paired “t” test was employed in the study to analyse the significance of the result statistically.

Proper instruction was given to the subjects regarding the practice, basics of yoga, its relevance and importance. The asanas were introduced gradually. On the first day three asanas, one pranayama and yoganidra were taught and one new asana was taught for every next day. Gradually all pranayama were taught and subjects were asked to take five breathing properly in the final position of the asanas. Subjects also advised to keep concentrating on the practice. During yogic practice session individual attention given to the subjects and concentration given to the synchronization of breath and along with the body movement.

The list of yogic practices administered for Experimental group

Asanas: 1.Svastikasana, 2.Vajrasana, 3.SuptaVajrasana, 4.Simhasana,

5.Tadasana I, 6. Katiparivarthasana, 7.Trikonasana, 8. Parsvakonasana, 9. Purvottanasana, 10. Pavanamuktasana, 11.Bhujangasana, 12.Dhanurasana, 13.Ustrasana, 14.Bharadwajasana, 15. Ardhamatsyendrasana, 16.Viparitarani, 17.Uttanapadasana

Pranayama: 1.Ujjayee, 2.Anuloma-viloma, 3.Bhastrika, 4.Bhramari

Relaxation: 1.Savasana 1&2, 2. Yoganidra.

Parameters

FVC- Forced Vital Capacity

This measures the amount of air one can exhale with force after the deep inhalation.

FEV₁- Forced Expiratory Volume (in 1 second)

The amount of air exhaled in one breath. It may be measured at 1 second (FEV₁), 2 seconds (FEV₂), or 3 seconds (FEV₃). FEV₁ divided by FVC can also be determined, it is FEV₁/FVC.

Lung Age: This measure the age of the lung depending on FVC and FEV₁

Results

All the subjects under study were tested before and after 45days of yoga training. The result shows an overall improvement in FVC, FEV₁ and Lung age in Experimental group. Tables I & II shows the improvement in the parameters for every individual of Experimental group, but not such significant improvement in the Control group. This shows that functioning of Lungs and overall health has improved in the Experimental group compared to the Control group. Therefore, in general we can analyze the result as follows:

- ◆ As far as FVC and FEV₁ are concerned, all the subjects of Experimental group showed remarkable improvement.
- ◆ Lung age of the subjects of experimental group reduced significantly.

TABLE: 1
 The Values of FVC, FEV₁ and LUNG AGE of Experimental Group

Parameter	Mean of diff.	SD		T Value	P value	Sig
		Before	After			
FVC	-1.099	0.4094441	0.6078825	-4.6796	0.001153	HS
FEV ₁	-1.067	0.6078825	0.3627687	-4.8828	0.000868	HS
LUNG AGE	16.8	12.36887	14.49943	5.2162	0.000552	HS

HS-Highly Significant

TABLE: 2
 The Values of FVC, FEV₁ and LUNG AGE of Control Group

Parameter	Mean of diff.	SD		T-Value	P-value	Sig
		Before	After			
FVC	0.173	0.3174009	0.6061133	0.698	0.5028	NS
FEV ₁	0.09	0.2430935	0.564038	0.3965	0.701	NS
LUNG AGE	-1.5	9.357113	13.67276	-0.339	0.7424	NS

NS-Non Significant

Discussion

The present study reveals that the concerned variables of Lung Function Test have been rationalized in terms of the hypotheses that the Experimental group will outperform the control group due to 45 days of yogic interventions. The results could best depicted that, there is significant improvement at a level of significance $p < 0.05$ in FVC with a significant p value 0.001153, for FEV₁ $p = 0.000868$, Lung Age $p = 0.000552$. When Compared to the Experimental group, the Control group has not shown any such significant changes after the study. This reveals that the Experimental group has been benefited more in terms of various variables are concerned. The rationale for the yogic treatment could be offered in the following manner.

A study on effect of yoga on the subjects showed that the lung function parameters (FVC, FEV₁, and Lung Age) improved after the practice of yoga and indicated that, yoga may be a useful form of therapy for respiratory disorders. The results of the present study allow a few fairly firm conclusions. Significant, steady and

progressive improvement in key objective variables such as FVC and FEV₁ only in the yoga group but not in the control group indicates the efficacy of yoga. This is further substantiated by the significantly greater improvement in quality of life in the yoga group than in the control group.

The present study is an attempt with the Digital Spirometer, Helios 401, to get an accuracy and reliable data for the investigation into the mechanism by which yoga helps for the healthy functioning of Lungs. Although there are several studies available on the efficacy of yoga in bronchial asthma and several other diseases, studies have to reach a critical mass before they can influence practice. Further, in case of yoga, very few of the studies are randomized controlled trials. Because of the dilution of a few Research papers by several less rigorous trials, and also because of widespread scepticism with which disciplines like yoga are approached by practitioners of conventional medicine, the impact of the Research papers is inadequate. Further, it would help to integrate mind-body approaches like yoga into the practice of

scientific medicine if the trials not only show that these approaches work, but also how they work in terms of measurable basic mechanisms.

It is evident from the above result that all the 15 subjects responded to the yoga therapy positively, as the tables show the improvement. Hence it is proved that “Yogic practices have a significant impact in the improvement of lung functions.” But the variation of the rate of success could be depended on the regularity of the practice, lifestyle, dietary change and the chronicity of the disease. Thus, we can say

that Yoga therapy is fully fruitful for those who adhere to the regular practice. However, in practice the decline in compliance increases steeply as the study gets longer, possibly owing to the time commitment required from the subjects.

Conclusion

By considering all the above factors, it can be concluded that yoga therapy has got significant effect on the lung functions of individuals. Therefore it may be used as a therapy method to overcome from the disorders of respiratory system.

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