



## Influence of Kundalini Yoga Practices on Peak Expiratory Flow Rate and Total Lung Capacity among Women Cotton Mill Workers

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Received 3rd June 2016, Accepted 1st August 2016

### Abstract

The purpose of the study was to find out the impact of kundalini yoga practices on peak expiratory flow rate and total lung capacity among women cotton mill workers. It was hypothesized that there would be significant differences on peak expiratory flow rate and total lung capacity due to the effect of kundalini yoga practices among women cotton mill workers. For the present study the 30 male cotton mill workers from Coimbatore district, Tamilnadu were selected at random and their age ranged from 20 to 35 years. The subjects were randomly assigned to two equal groups of fifteen each and named as Group 'A' and Group 'B'. Group 'A' underwent kundalini yoga practices and Group 'B' has not undergone any training. The data was collected before and after six weeks of kundalini yoga practices. The data was analyzed by applying dependent 't test'. The level of significance was set at 0.05. The peak expiratory flow rate and total lung capacity were analysed using spirometer. The kundalini yoga practices had positive impact on peak expiratory flow rate and total lung capacity among women cotton mill workers. The experimental group showed better improvement on peak expiratory flow rate and total lung capacity among women cotton mill workers than the control group.

**Keywords:** Simplified Kundalini Yoga, Cotton Mill Workers, Peak Expiratory Flow Rate, Total Lung Capacity.

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### Introduction

The adverse respiratory effect of exposure to cotton, flax, and hemp dust in the textile industry was first described several centuries ago as a syndrome later called byssinosis. Schilling first classified byssinosis severity based solely on symptoms: Grade I is characterized by chest tightness and shortness of breath on only the first day back to work after a weekend off, termed "Monday asthma". Grade II occurs when symptoms occurs on days other than the first day back to work, and Grade III is characterized by evidence of permanent loss of lung function often forcing the worker to retire. In 1983 the World Health Organization proposed a modification of the Schilling classification that also incorporates spirometry, although this has not been broadly adopted in research publications. The purpose of this review is to evaluate the literature on long-term respiratory diseases due to non-synthetic textile work in the context of disease classifications such as reversible or irreversible obstructive lung disease (asthma and COPD, respectively), interstitial lung disease, and additionally, to highlight notable recent advances.

The textile industry in Coimbatore, which

accounts for a predominant part of the industry in southern India, is facing a crisis. A substantial part of the capacity of the spinning mills in and around the city, which manufacture yarn, remains idle. Thousands of mill workers have not received their wages for months. They face the even more serious prospect of losing their jobs as the danger of several units closing down in the immediate future appears to be real. For three years now, the industry has been reeling under the impact of a demand recession in the domestic market and a steep fall in yarn exports, particularly since the start of the South-East Asian economic crisis in 1996. Ironically, the turmoil in the industry is blamed on economic liberalisation, which was widely believed to have contributed to Coimbatore's success in the last decade. The textile industry is the engine of Coimbatore's economy, and the slowdown has meant that Coimbatore's image as a boom town, earned in the 1980s and early 1990s, is now considerably faded.

Kundalini energy is technically understood as being sparked during yogic breathing when prana and apana blends at the 3rd chakra (naval center) at which point it initially drops down to the 1st and 2nd chakras before traveling up to the spine to the higher centers of the brain to activate the golden cord - the connection between the pituitary and pineal glands - and penetrate the 7 chakras. Borrowing and integrating the highest forms from many different approaches, Kundalini Yoga can be understood as a tri fold approach of Bhakti yoga

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for devotion, Shakti yoga for power, and Raja yoga for mental power and control. Its purpose through the daily practice of kriyas and meditation in sadhana are described a practical technology of human consciousness for humans to achieve their total creative potential.

There being four main forms of yoga, Mantra yoga, Hatha yoga, Laya yoga and Raja yoga; Kundalini yoga is really considered a Laya yoga. Mainstream traditions propose that kundalini energy can be awakened and enlightenment attained by practicing a combination of yogic techniques, ideally following the guidance of a certified teacher including the use of mantra, prana and breathing techniques, sadhana, asana practice, meditation, or purely through devotion and prayer. According to some Hindu traditions, Kundalini yoga is considered a highly developed spiritual awakening which relies upon a technique called shaktipat to attain enlightenment under the guidance of a spiritual master. In the classical literature of Kashmir Saivism kundalini is described in three different manifestations. The first of these is as the universal energy or para kundalini. The second of these is as the energizing function of the body mind complex or prana kundalini. The third of these is as consciousness or shakti kundalini which simultaneously subsumes and intermediates between these two. Ultimately these three forms are the same but understanding these three different forms will help to understand the different manifestations of kundalini.

The word 'Kundalini' can be traced to the Sanskrit word 'kundala', which means 'coiled'. Kundalini can therefore be used by believers to refer to the latent energy within the human body which is constantly trying to manifest as our insight, power and bliss. According to one author, the word kundalini literally means "the curl of the lock of hair of the beloved". It is a metaphor, a poetic way of describing the flow of energy and consciousness which already is said to exist within each person. The practices are said to enable the person to merge with or "yoke" the universal self. This merging of individual consciousness with the universal consciousness is said to create a "divine union" called "yoga". The practice of kriyas and meditations in Kundalini Yoga are designed to raise complete body awareness to prepare the body, nervous system, and mind

to handle the energy of Kundalini rising. The majority of the physical postures focus on navel activity, activity of the spine, and selective pressurization of body points and meridians. Breath work and the application of bhandas aid to release, direct and control the flow of Kundalini energy from the lower centers to the higher energetic centers.

**Objectives of the Study**

1. To motivate the women cotton mill workers to overcome the respiratory problems by practicing Simplified Kundalini Yoga techniques regularly.
2. To give suitable suggestions and to bring awareness of respiratory problems for women cotton mills workers.

**Methodology**

The purpose of the study was to find out the impact of kundalini yoga practices on peak expiratory flow rate and total lung capacity among women cotton mill workers. It was hypothesized that there would be significant differences on peak expiratory flow rate and total lung capacity due to the effect of kundalini yoga practices among women cotton mill workers. For the present study the 30 male cotton mill workers from Coimbatore district, Tamilnadu were selected at random and their age ranged from 20 to 35 years. The subjects were randomly assigned to two equal groups of fifteen each and named as Group 'A' and Group 'B'. Group 'A' underwent kundalini yoga practices and Group 'B' has not undergone any training. The data was collected before and after six weeks of kundalini yoga practices. The data was analyzed by applying dependent 't test'. The level of significance was set at 0.05. The peak expiratory flow rate and total lung capacity was analysed using spirometer.

**Results**

The findings pertaining to analysis of co-variance between experimental group and control group on peak expiratory flow rate and total lung capacity among women cotton mill workers for pre-post test respectively have been presented in table I to II.

**Table I.** ANCOVA between Experimental Group and Control Group on Peak Expiratory Flow Rate of women cotton mill workers for Pre, Post and Adjusted Test

	Experimental Group	Control Group	Source of Variance	Sum of Squares	df	Mean Square	F
Pre Test Mean	275.25	256.78	BG	0.09	1	0.09	1.12
			WG	2.42	28	0.08	
Post Test Mean	401.24	284.24	BG	6.55	1	6.55	131.00*
			WG	1.41	28	0.05	
Adjusted Post Mean	401.23	284.02	BG	6.87	1	6.87	171.75*
			WG	1.14	27	0.04	

\*\* Significant at 0.05 level.

df: 1/37= 4.10

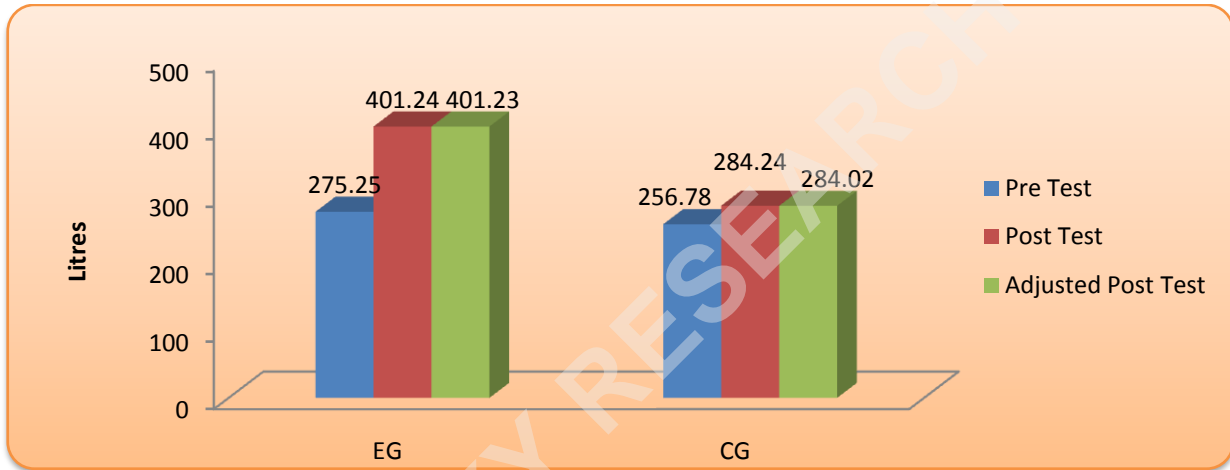
Table I revealed that the obtained 'F' value of 171.75 was found to be significant at 0.05 level with df

1,28 as the tabulated value of 4.21 required to be significant at 0.05 level. The same table indicated that

there was a significant difference in adjusted means of peak expiratory flow rate of cotton mill workers between

experimental group and control group. The graphical representation of data has been presented in figure I.

**Figure I.** Comparisons of Pre – Test Means Post – Test Means and Adjusted Post – Test Means for Control group and Experimental Group in relation to Peak expiratory flow rate



**Table II.** ANCOVA between Experimental Group and Control Group on Total Lung Capacity of women cotton mill workers for Pre, Post and Adjusted Test

	Experimental Group	Control Group	Source of Variance	Sum of Squares	df	Mean Square	F
Pre Test Mean	4.52	4.68	BG	0.77	1	0.77	0.85
			WG	25.45	28	0.90	
Post Test Mean	5.12	4.75	BG	138.54	1	138.54	87.68*
			WG	44.40	28	1.58	
Adjusted Post Mean	5.10	4.74	BG	130.05	1	130.05	90.94*
			WG	38.66	27	1.43	

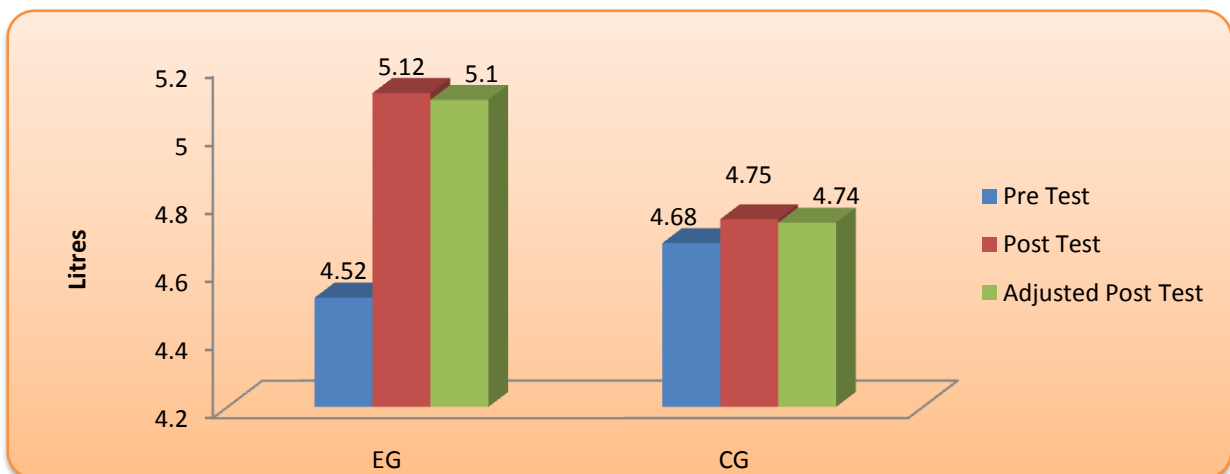
\*\* Significant at 0.05 level.

df: 1/37= 4.10

Table II revealed that the obtained ‘F’ value of 90.94 was found to be significant at 0.05 level with df 1,28 as the tabulated value of 4.21 required to be significant at 0.05 level. The same table indicated that

there was a significant difference in adjusted means of total lung capacity of cotton mill workers between experimental group and control group. The graphical representation of data has been presented in figure II.

**Figure II.** Comparisons of Pre – Test Means Post – Test Means and Adjusted Post – Test Means for Control group and Experimental Group in relation to Total lung capacity



## Conclusions

On the basis of findings and within the limitations of the study the following conclusions were drawn: Significant effect of simplified kundalini yoga practices was found on peak expiratory flow rate and total lung capacity.

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