

# EFFECT OF KAPALABHATI PRANAYAMA YOGIC PRACTICES ON SELECTED SCHOLASTIC ACHIEVEMENT VARIABLES AMONG RURAL GOVERNMENT HIGHER SECONDARY SCHOOL BOYS

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## ABSTRACT:

The study was to identify the Kapalabhati Pranayama effect on Selected Scholastic Achievement variable among rural government higher secondary school boys in Thiruvadanai, Tamil Nadu. Thirty Boys in the class Eleventh of ages between 17 and 19 years. The boys for study elected using simple random technique. Consent letters were secured duly briefed the total program and its methodology of training from the student's parents, Teachers, and the trainers from Yoga Life Science Trust, Devakottai. The identified boys segregated into two groups of Experimental-I and Control Group-II of fifteen each (N=15). The experimental team was assigned six weeks Kapalabhati Pranayama Yogic Practices and C G-II was kept idle without any training. The training group was put under Kapalabhati pranayama thirty rounds per minute and the same system will be for two, three and five minutes with five minutes rest in between. On completion of six weeks schedule test will be measured for Kapalabhati effects of Peak Expiratory flow rate using Peak-flow meter /Pulmo- Peak apparatus. This is done in between pre and post-test performance the pulmonary effective activities are valuated, examinations on General Math's, Computer Math's and Physics subjects were tested among Experimental as well as Control Groups. The marks arrived out of pre- and post- tests from the subjects to match significance were put into statistical ANCOVA analysis and obtained "F" value test. to concur 0.05 level of confidence. The peak Expiratory Flow Rate results as well as the "F" ratio obtained shows significant improvement in Scholastic achievement among the Rural Government Higher Secondary School Boys. The findings of the study created a strong hope that Kapalabhati Pranayama Practice is a source for young students to acquire better Scholastic Achievements. The Educational Authorities must make it mandatory to include Kapalabhati Pranayama as an important part in Educational Curriculum.

**KEYWORDS:** Peak Expiratory Flow Rate, Pulmo Flow Meter, Pulmo Peak Apparatus, Scholastic Achievement.

## 1. INTRODUCTION:

Before the dawn of human civilization –The origin of Yoga Practice was in existence. Several thousand a decade before the first religious belief systems were born- Lord Siva was seen as the first Yogi, or Adhiyogi, at Shantisarovar lake-Garhwal-in Himalayas “.Yogi and the first Guru or Adhi- Guru advocated his profound knowledge to the legendary –Saptarishis or Seven Sages or the first seven disciples of Adhi-Yogi. These seven sages carried this powerful Yogic Science to different parts of the world-including Asia, The Middle-East, Northern –Africa and South –America” (Ishwar and Basavaraddi, 2015). “Across the Indian–subcontinent one among the Saptarishis, Sage Agastya crafted this yogic culture around a core yogic way” (MEA Ministry, GOI, 2021) Body is the suitable vehicle for the soul to undertake its divine journey towards perfection. The soul devoid of body cannot feel any sensation and so cannot achieve loftiness. Hence, the human life on the earth in the carefully selected path and it may be destined to attain the goal of life. The pattern of life that we are enjoying today is found out by Rishis and Yogis after hundreds of years of meditation is very perfect and wonderful. (Iyengar, 2016). So, everybody should follow true path in his or her life to attain inner harmony.

The Vedic period was attached highest order for Sun. This influenced the asana of Surya Namaskar. The twelve rounds of Surya Namaskar is a process of breath in and breath out inhale, exhale process very well attached to Kapalabhati pranayama practices.” Upanishads a huge work containing over 200 Scriptures systematized and codified the then existing practices of yoga; it’s meaning and related knowledge.” (Sage Patanjali’s Yoga Sutras). “When the unseen Coronavirus knocked on the doors of the world, no country was prepared for it in terms of resources capability and mental toughness. We all have seen that in such difficult times, yoga has become an inner source of strength” (Admin, 2021). The yogic practices are depicted in the form of Sculptures at Shri Yogendra Museum of classical yoga, the world’s first Museum dedicated to the World. The Coronavirus as per the study and global acquired experience revealed to the rest of the world that it occupies the total respiratory track up to the capillaries of alveoli in the Pulmo organ, thus closing the doors of receiving oxygen and eliminating carbon dioxide process. Once the elimination of impurity is stopped, the blood becomes poisoned resulted of which increasing fatality. “An important announcement was made during world yoga day address, India had in collaboration with the W H O, on 21st, June, 2021, our Prime Minister of India has taken another important step as the world is going to get the power of “M-YOGA APP” the application which will have many videos of Yoga Training based on common Yoga Protocol available in different Global Languages to every person connected to Medical Health Sciences and globally acclaimed Yoga Therapists advocated Kapalabhati Pranayama Exercises to observe” (Admin, 2021). In our study, the elected students were provided with extensive practices and results showed a great improvement in their Academic.

To attain Scientific State of accuracy Yoga provides life exactness, as kapalabhati Pranayama is an elongation of pranayama. Kapalabhati is a forcible, rhythmic and continuous respiratory system provides the cleansing of life-saving respiratory system. Since the Kapalabhati is rapid, short and forcibly very strong, the lungs pumps-out huge impurities and supply oxygenated rich pure blood into the Heart and Brain. In yogic terms it is known that Kapala is “Skull” and “Bhati” is a respiratory process (Yogapedia, 2017). Brings lightness to the Head imbedded organs and monitors the complete functions of the human).

The style of Kapalabhati pranayama exhibits forcible, rhythmic and systematic expansion and shrinking of Pulmo respiratory organs with the help of diaphragm, Anulom, Kumbhak, and vilom are the functions carried out. The capillaries in the lungs are a minuscule balloon like organs purify the carbon dioxide (CO<sub>2</sub>), impure blood. The electro power within mitochondria attracts the oxygenated pure blood and produces new cells with the help of white blood corpuscles (Study CBSE, 2021). The enormous new cells are born discarding the old and dead cells. This happens in the life saving track helps the young school boy's acquire new energy, coolness, perfectness which helps them in attention and constant observation leads to securing top-level marks in the school curriculum. The elected boys were from predominantly rural background Government Higher Secondary School was of ages between 17 and 19 years in their eleventh standard needed Pulmo cleansing practices. Expansion of the capacity space in lungs to receive huge volume of air over and above the present capacity. As per the latest WHO study report on the outcome of unexpected COVID-19 Pandemic, the oxygen holding capacity on an average account to only 30% of its original capacity globally. To save the rare life of rural boys and to increase their academic performance, the Kapalabhati Pranayama yogic practices chosen for the pupil and conducted the study.

## 2. LITERATURE REVIEW

**2.1.** Kapalabhati Pranayama Yogic Practices endorsed by the W H O as moved by United Nations to protect persons from all ages, particularly during the COVID-19 Pandemic period. It is exactly the process of cleansing of respiratory track. The boys in schools needed the exercise on Kapalabhati for protection from COVID-19 and immunity enhancement for their study and Scholastic Achievements. (Ishwar and Basavaraddi, 2015).

**2.2.** Poonam Khetrapal Singh, the W H O Regional Director for Southeast Asia, Kapalabhati Pranayama can help reduce the risk of depression and maintain cognitive functioning.

**2.3.** A government recognized Private Board Council for Indian Certificate Examinations (CISCE) that runs 2280 Schools across India, decided to make Yoga -Kapalabhati compulsory in its curriculum. (Hindustan Times .com).

**2.4.** The heart attack occurs when the blood flow, which brings oxygen to the heart muscle, is Reduced or obstructed or severely narrowing the arteries that supply the blood to the Heart. (<https://www.kenhub.com>anatomy>).

**2 .5** Vaatkrama, Vyutkraama and Sheet kram are the active pranayama of Kapalabhati. Maximum repetitions up to 120 per minute. 200 repetitions for experienced Sathagas. [<http://training.seer.gov>STR>].

## 3. METHODS AND MATERIALS

### 3. 1. Research design:

The study on "The Effect of Anulom-Vilom and kapalabhati Pranayama on positive Attitude in School going children" (Chaukan, 2013). "The work made by the author in line with the proposed study and similar thesis available in the journal." (Pharmacol, 1992). "A new thesis and paper published on breathing rate of pranayama on autonomic functions" (Velukutty, 2004) "Selected yogic breathing techniques. Its

effect on heart.” (Raguraj, Ramakrishnan, Nagendra. And Telies, 1998). “During pranayama Oxygen consumption & breathing”. (Tellez’s, Desiraju, 1991). With the knowledge gained from the study conducted and published in peer journals the model of the present study “Effect of Kapalabhati Pranayama Yogic Practices on Selected Scholastic achievement among Rural Government Higher Secondary School Boys “has been coined and the study carried out to meet our object.

### 3.2. Setting of Hypothesis:

The Kapalabhati Pranayama Yogic practice for the Rural Government School Student was chosen to identify benefits available in Pulmo-respiratory functions.

The Null Hypothesis ( $H_0$ ):

There would be no significant differences with the pre and post-test of Kapalabhati Yogic practices.

The Alternate Hypothesis ( $H_1$ ):

There would be significant differences among pre and post-test scores on kapalabhati practices.

### 3.3. Model Proposed for the study:

The training schedule proposed for the study is presented in the Table-1; The table will have divisions such as duration in week, training schedule, duration of training, total time allotted for each session. This model is planned for measuring Peak Expiratory Flow Rate (PEFR) using Pulmo-Flow Meter (PFM).

Table-1: The Research Schedule –Kapalabhati Pranayama Yogic Practices

DURATION (in Week)	Training Schedule	Duration	Total time for the Session
I	Sithalikaarana Vyayama Preparatory warm-up exercises	10-Minutes	30-Minutes
	Kapalabhati pranayama yogic practices-9 Rounds x =1 set	15-Minutes	
	Rest in between	5-Minutes	
II	Sithalikaarana Vyayama Preparatory warm-up exercises	10-Minutes	30-Minutes
	Kapalabhati pranayama yogic practices-9 Rounds x =1 set	15-Minutes	
	Rest in between	5-Minutes	
III	Sithalikaarana Vyayama Preparatory warm-up exercises	10-Minutes	35-Minutes
	Kapalabhati pranayama yogic practices-9 Rounds x =1 set	20-Minutes	
	Rest in between	5-Minutes	
IV	Sithalikaarana Vyayama Preparatory warm-up exercises	10-Minutes	35-Minutes
	Kapalabhati pranayama yogic practices-9 Rounds x =1 set	20-Minutes	
	Rest in between	5-Minutes	
V	Sithalikaarana Vyayama Preparatory warm-up exercises	10-Minutes	40-Minutes
	Kapalabhati pranayama yogic practices-9 Rounds x =1 set	25-Minutes	
	Rest in between	5-Minutes	
VI	Sithalikaarana Vyayama Preparatory warm-up exercises	10-Minutes	45-Minutes
	Kapalabhati pranayama yogic practices-9 Rounds x =1 set	30-Minutes	
	Rest in between	5-Minutes	

Source: Author's Training Schedule

#### 3.4. Delimitation adopted in the model:

The experiment /treatment chart for the program is presented in Table: 1. The Parents of the randomly identified Boys for the program, Teachers, Trainers from Yoga Life Science Trust were elaborately briefed the purpose of the study and the benefits available to the targeted Boys. The thirty selected Boys were bifurcated of fifteen each (N=15), named practical and idle group. The practical group to undergo Kapalabhati pranayama practices for six weeks and the control group to be kept idle for not participating in any program. The boys were not allowed to participate in any other physical exercise activities. It was allowed to have their regular food according to their family economic status and religious belief if any they follow in food system.

## RESULTS AND DISCUSSION

Study is designed to suit the convenience of the Rural Boys. The finalized boys were made familiar with the program. Yoga Life Science Trust Practitioners demonstrated to make the boys to attach their involvement in the program and its success. The pre and post test score of PEFR using Peak Pulmo tool or

Pulmo kid recorded and evaluated results statically analyzed to proceed further with the Scholastic Achievement Test Program.

The mean score in experimental group pre and post-test worked out to 270.66 and 345.33. In control group it was assessed as 251.33 and 249.33. The standard deviation in experimental and control group arrived at 8.414 and 2.744. Mean difference statically found to be 74.67 and 2.00 for experimental and control groups respectively. In standard error gives the value for experimental and control subjects 15.623 and 0.392. The experimental group the “t” ratio explicitly showing increase at 99.82 compared to control group at 4.83. The Kapalabhati Pranayama Practice proving hypothesis set at 0.05 level of confidence.

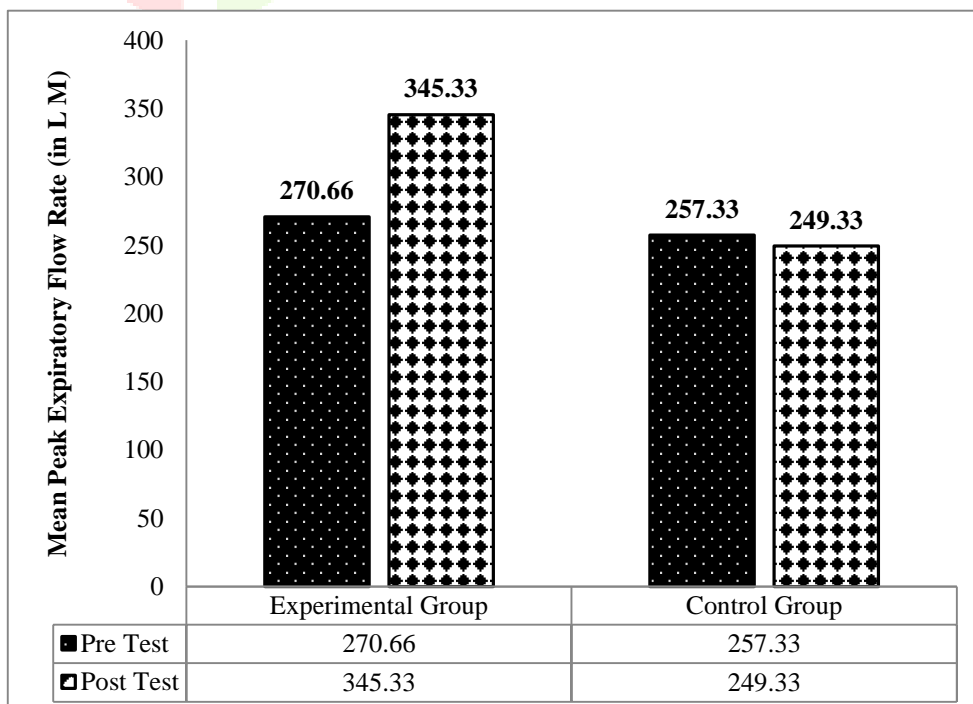
Table 2: Comparison of Pre and Post-Test Means Statistical Analysis Peak Expiratory Flow Rate of Rural Government Higher Secondary School Boys to Determine Scholastic Achievement

Group	Period	Mean	Std. Deviation	Mean Difference	Std. Error	t Value
Experimental Group	Pre-test	270.66	8.414	74.67	15.623	99.82
	Post-test	345.33				
Control Group	Pre-test	251.33	2.744	2	0.392	4.83
	Post-test	249.33				

Source: Data collected by the author and put into statistical examination.

The pre and post-test on examinations conducted on the subjects chosen to prove the Scholastic Achievement. The result of the post-hoc test arriving value shown table.2.

Practice Figure-1: The Average Peak Flow Meter Reading before and after the Kapalabhati Pranayama



For young boys the blowing volume of standard rate would be 250-350 L/M. The experimental groups showed better results when compared to control group. Based on the Peak Expiratory Flow Rate measurements Academic Achievement study process have been made and results obtained and put under ANCOVA statistical examination.

Table-3: Analysis of covariance on scholastic achievement in general math's, computer math's, and physics and control group.

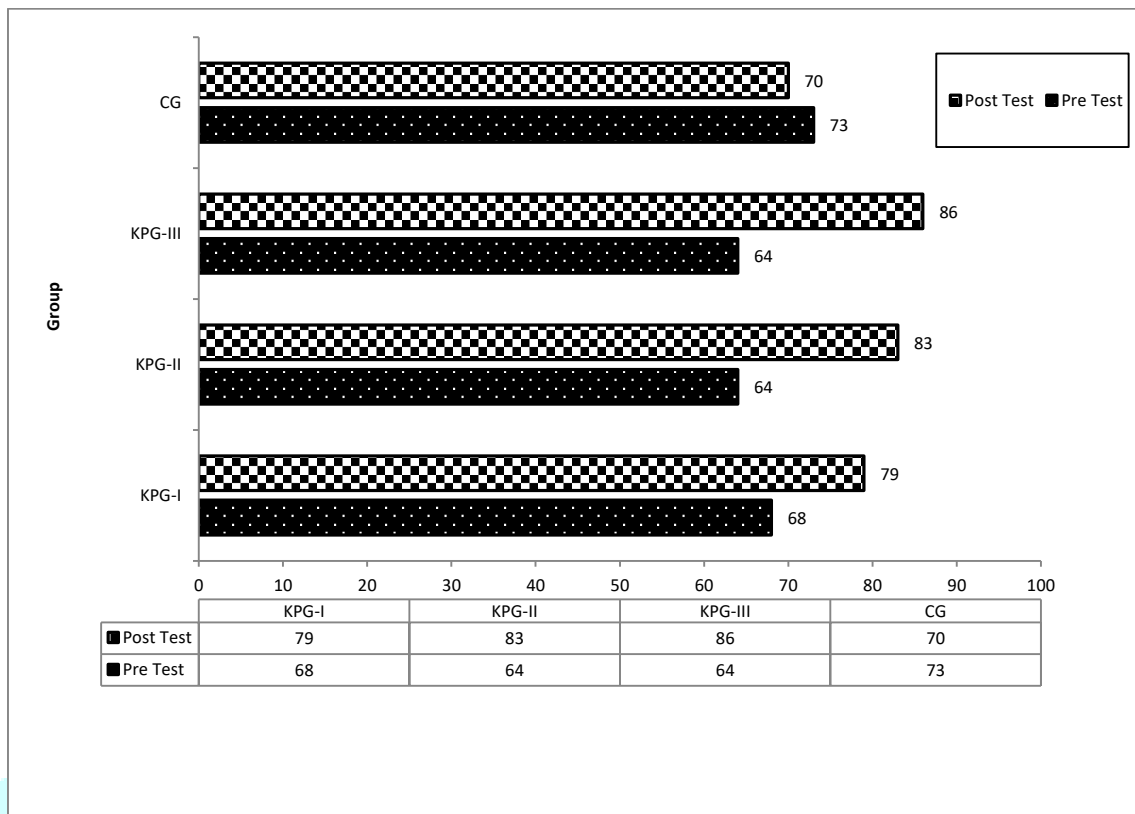
Tests		KPG-I	KPG-II	KPG-III	CG	SOV	SS	df	MS	F-Ratio
Pre-test	X	68	64	64	73	Between	1379	4	345	345/37
	SD	3.96	6.63	7.79	6	Within	2031	56	37	9.32
Post-test	X	79	83	86	70	Between	381	4	95	95/66
	SD	5.83	8.14	14	20	Within	3671	56	66	1.44
Adj. Post-hoc test						Between	0	4	0	
	X	85	91	100	90	Within	20	55	7	7.7

Source: Author's Calculation

$F(0,05)(4,56 \text{ and } 4,55) = 2.53$

The Table-3 shows the Kapalabhati Pranayama Achievements on KPG-I General Math's, Computer Math's KPG-II, and Physics KPG-III and Control Group-CG. Scholastic Achievement mean results KPG-I=68, KPG-II=64, KPG-III =64 and CG= 73 on pre-test. The Post –test mean scores were KPG-I=79, KPG-II=83, KPG-III =86, and CG= 70. The F value arrived on the pre-test was 9.32 where as the post- test value was 1.44. The table value found to be 2.53. This is evident that the F value on pre-test is higher than the table value. Scheff's test is statistically significantly at the confidence level of 0.05 per cent.

Figure-2: Pre and Post-test average marks obtained by experimental and control group boys.



KPG-I- Gen Maths

KPG II -Comp. Maths

KPG III- Physics

CG – Control Group

#### 4. CONCLUSION:

When the unseen coronavirus knocked on the doors of the world, no country was for it in terms of resources Capability and mental toughness. We all have seen that in such difficult times, Yoga has become the source of inner strength – “Prime Minister of India –Narendra Modiji.” Yoga tells us that so many problems might be out there, but we have infinite solutions within ourselves. We are the biggest source of energy in the universe, but we did not realize this energy. (Admin, 2021]. “We are following Yogic Practices since ages, Vasudhaiva Kutumbakam, acclaimed Global recognition and we are for World people well-being”. We have in this exercise applied the Kapalabhati Pranayama Yogic Practices among the Rural Government Higher Secondary School Eleventh Standard Boys and found their Peak Expiratory Flow Rate considerably increased and in its condition the Scholastic Achievement was found significantly improved. The results obtained are showing greater increased performance in their regular examinations and the Boys are alert, confident, calm, peace and attentive observations in the class room.

Proper and regular Kapalabhati Pranayama Yogic Practices generate enormous inner strength and generate new cells which are required for the young School Children for their Academic Achievements and acquire hassle-free standard health condition, particularly for rural oriented School Boys; hence it is suggested that every School must have a special programme on this to teach Kapalabhati Pranayama.

When we speak about Psychological factors, it is evident that Attention, stress, and Scholastic achievement are automatically exhibited in the exercise during the process of Measuring Peak Expiratory Flow Rate. Whereas in Physiological bio-chemical factors, Cardiovascular Respiratory endurance and immunity builds-up airway caliber and reducing the lung viscose resistance. This activity enhances the



muscle respiratory function. All the parameters such as Physical, Physiological and psychological factors are allied and coordinated in this yogic Kapalabhati pranayama.

### Recommendations:

During the Covid-19 pandemic period the whole of World collapsed almost. But our Nation stood on its yogic Power and supplied free the coronavirus eradication doses to the rest of Country. The tester used one of its element of

Yoga Stature Kapalabhati Pranayama as an experimenting tool among Rural Higher Secondary school Boys, proving the Scholastic Achievement. The kapalabhati Pranayama acts as a cardio respiratory endurance function by cleansing the respiratory track. Deoxygenating (elimination of CO<sub>2</sub>) and Oxygenating (Absorption of O<sub>2</sub>) exchanges taking place resulted in purification of blood and production of abundant new cells. This process facilitated immunity builds –up and chased away the Coronavirus. Though the test is in the present only for Secondary School Boys, it has to be extended to all sexes and to all age groups. Our Nation is sown with Yogic power seeds by our Adhi-guru, but we are not utilizing it. Yoga Centers have to be promoted across the country, so that we will stand atop leaving the superpower nations in combating any pandemic.

To quote in Global GDP India: 8.2%, England: 3.7 %, and China: 4.4% (**IMF Growth Projections 2022**). The power of yoga made attain this position despite detractions in different directions.

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