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## Analytical Approach of *Pranayama* in Maintenance of Health

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### ABSTRACT

*Yoga* is a traditional and cultural science of India. It is the art of knowing oneself and knowing eternal truth. *Pranayama* is a subtle *Hathayogic* procedure which is practiced through breathing. *Ashtanga Yoga* as mentioned in yogic literature has given more importance to *pranayama* than *asana* for betterment of good health. *Pranayam* has an eminent role in relaxation of mind and body. It also serves as a boon in curbing various which is growing rapidly due to disturbed life style. The previous studies indicate that regular practice of *Pranayam* causes increase in all the parameters of volumes and capacities except rate of respiration which reduces. *Pranayama* has many systemic psycho-physical effects in the body hence it is practiced in health clubs and community recreation programs.

### KEYWORDS

*Pranayama, Yoga, Breathing techniques*



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## INTRODUCTION

*Yoga* is a traditional and cultural science of India. It is the art of knowing oneself and knowing eternal truth. *Yoga* deals with the functioning of the body, mind and intellect of oneself. In present era *Yoga* has spread worldwide and is practiced extensively as the people were taking interest in *Yoga* from different angles<sup>1</sup>.

Nowadays *Yoga* has migrated substantially from a limited Indian art to an International science of global significance from a pure spiritual pursuit to a growing scientific discipline and from a path of individual *sadhana* to a movement of social transformation. The word *Yoga* is derived from Sanskrit root “*Yuj*” as also from the root “*Yujir*” meaning ‘to unite’ or ‘to investigate’. This Union refers to the union of ‘*Jivatman*’ with the ‘*Parmatman*’ i.e. the union of the individual consciousness with the cosmic or divine consciousness. *Maharishi Patanjali* explains *Yoga* in 8 different forms called as - *Ashtanga Yoga* viz. *Yama* (Universal ethics), *Niyama* (individual ethics), *Asana* (practice of posture in physical form), *Pranayama* (control of breathing process), *Pratyahara* (control of the senses), *Dharana* (concentration), *Dhyana* (meditation) and *Samadhi* (eternal bliss)<sup>2,3</sup>.

*Pranayama* occupies second place in *Hatha*

*Yoga* while it constitutes the fourth step of *Patanjali's Ashtanga Yoga*. The word *Pranayama* is formed by two words i.e. *Prana* and *Ayama*. *Prana* serves as vital force which provides energy to different organs (including mind) and also controls many life process (e.g. circulation, respiration etc.) whereas *ayama* serves as the entity that voluntarily controls the functions of *Prana*. The breathing system (*pranic* activity) is linked with nervous system on one hand and the mind (consciousness) in the other. *Yoga* has taken best advantage of this situation, considering that the mind could be controlled effectively with the voluntary regulation over breathing. *Pranayama* serves as a pathway or connection of one's soul to the external world<sup>4,5</sup>.

## MATERIALS AND METHODS

A complementary study on *Pranayama* was undertaken and relevant data were searched in different Ayurvedic literatures as well as research papers published in scholarly journals were also searched online from scientific electronic database viz. Pubmed, Google scholar, Science Direct etc.

## DISCUSSION

*Pranayama* is a subtle *Hathayogic* procedure which is practiced through



breathing. The art of practicing *Pranayama* requires a good control over breathing. In *Yogic* practices different types of *Pranayama* produce specific physiological responses that greatly depends on type and duration of the practice viz. *Ujjayi, Surya bhedana, Sitkari, Sitali, Bhastrika, Bhramari, Murcha, Plawani.*

*Pranayama* is a complex voluntary act that consist of three distinct phases i.e. *puraka* (inhalation), *kumbhaka* (breath holding) and *rechaka* (exhalation). *Puraka* is the voluntary prolongation of the inspiratory phase. It is well controlled in terms of time, force, ventilation and depth as per proportion. The beginning of *Pranayama* is *Puraka* phase in which Inhalation is done in a very smooth way of by keeping the force uniform. *Kumbhaka* phase is characterized by voluntary controlled or rather suspension of breath. The intrapulmonary pressure (in alveoli) which is raised to one's optimum capacity is maintained during *kumbhaka* stage. The act of *rechaka* is performed as voluntarily controlled exhalation as compared to the normal exhalation. The most acceptable proportion of 1:4:2 ratios were followed for practice of *puraka, kumbhaka* and *rechaka* respectively<sup>6</sup>.

*Pranayama* brings about considerable control over mind and also helps in control of thought processes or emotional

disturbances etc. When *Pranayama* is performed the person has to sit in any suitable meditative *asana*, keeping the spine in a straight and well balanced condition, the eyes are closed gently to avoid any disturbances from the outer world which enable one to pay attention to the inner self. One has to focus on the rhythmic respiratory process for attainment of inner peace. Inhalation in *puraka* and exhalation for *rechaka* is slow, smooth and without any haste. The act of breathing is performed in a controlled way maintaining the same force all through respiration.

#### **Physiological study of Pranayama on respiratory system**

The day to day busy schedule and changing life style pattern is providing an epidemic in increase of different respiratory disorders. To avoid such growing respiratory diseases the practice of *Pranayama* is increasing worldwide. The regular practice of *Pranayama*, causes statistical reduction in the dead space ventilation<sup>7</sup>. Practicing *pranayama* regularly has a positive impact on cardiovascular<sup>8,9</sup> and respiratory functions<sup>10,11</sup> improves the autonomic system towards parasympathetic (vagal tone) dominance<sup>12,13,14</sup>. This in turn reduces the effects of stress strain on various systems. In a study conducted by ICMR it was found that about 5% of men and 3.2% of women in India were reported with



chronic respiratory diseases. *Pranayama* serves as a boon in curbing these growing respiratory disorders as regular practice of *pranayama* causes a significant increase in lung volumes and capacities improve the lung volumes and capacities. It was observed that regular practice of *pranayama* causes increase in all the parameters of volumes and capacities except rate of respiration reduces<sup>15</sup>. The studies done by NR Raju et al. shows following effect of *pranayama* on respiratory parameters which can be visualized as follows:-

- a) The regular practice of *Pranayama* enables the elastic and collagen fibers to strengthen the musculature as well as increase the extensibility that will allow efficient contraction of respiratory muscles thereby improving the inspiratory and expiratory capacities.
- b) *Pranayama* acts as potent stimulus for the secretion of pulmonary surfactant and prostaglandins.
- c) *Pranayama* is under the control of Pneumotaxic respiratory center. The specific pattern of breathing during *pranayama* might be adopted by Apneustic center that might lead to decreased rate of respiration.
- d) *Pranayama* in regular practice causes inhibition of the Apneustic and

Pneumotaxic centers leading to extended respiratory period.

- e) Breathing stimulates the stretch receptors leading to inflation of lungs nearly to total lung capacities causes relaxation of smooth muscles of larynx and trachea- bronchial tree thereby improving the lung volumes and capacities<sup>16</sup>.

### **Precaution during practice of Pranayama**

1. *Pranayama* should be done while sitting erect, still and comfortable in one of the meditative postures remaining in a clean, airy and peaceful place.
2. The practitioner of *Pranayama* should take nutritious *satvika* diet. Non vegetarian food, alcoholic drinks, smoking and excess of tea-coffee should be avoided.
3. *Pranayama* should be practiced on empty stomach.
4. Preferably it should be done after finishing the daily routine of life, bath etc. Bath is contraindicated up to one hour after *Pranayama*.
5. *Pranayama* should be practiced gradually and patiently. The practice should be done regularly everyday without interruption.
6. *Puraka* and *rechaka* should be done slowly without creating noise. *Kumbhaka* should be gradually enhanced.
7. The time ratio of *puraka*, *kumbhaka* and *rechaka* should be 1:4:2.



8. *Pranayama* is contraindicated in febrile conditions, pregnancy, hungry and indigestion.

9. *Bhastrika* should not be practiced in weak person. In anxious unstable person *Bhramari pranayama* is beneficial. *Sitali* and *Sitkari pranayama* should not be done in cold season, similarly *Ujjayi* and *Suryabhedana* should be avoided in summer hot season<sup>17</sup>.

## CONCLUSION

*Pranayama* serves as an art of controlling the vitality of life by controlling the physiology of breathing. It is effective on many psycho-physical effects in the body, besides its specific contribution on increasing respiratory volumes and capacities thereby affecting the respiratory functions. It is proved to be one of the best lifestyle modifications which have ever been devised in present era for prevention of many respiratory disorders worldwide. *Pranayama* has many systemic psycho-physical effects in the body hence it is practiced in health clubs and community recreation programs.



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