



## Alleviating Respiratory Diseases by Alternative Method – Yoga

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### ABSTRACT

Breathing sustains life, but natural breathing brings health and happiness. It clears the mind and calms all the emotions and releases the vitalizing flow of energy within us. Every human society, be it rural or urban, industrial or technologically advanced, is affected extremely by pollution of the air. Atmospheric pollution is responsible for various respiratory illnesses like nasal allergy, asthma, chronic bronchitis and lung cancer. Yoga is a science practiced in India over the thousands of years. It is a method of learning that aims to attain the unity of mind, body and spirit through three main yoga structures; exercise, breathing and meditation. The essence of yoga therapy is both preventive and curative. Research studies report that many people with serious respiratory ailments have found a solution in yoga. It is claimed that yogic practices help in prevention, control and rehabilitation of many respiratory diseases. A vital scientific and therapeutic aspect of yoga is Pranayama. Pranayama is the breathing process or the control of the motion of inhalation, exhalation and the retention of vital energy. Few exercises of pranayama like Anuloma viloma, Kapalbhathi, Bhramari which are components of yoga, are the best remedies to tackle respiratory illness caused by air pollution and other naturally occurring respiratory diseases.

**Keywords:** Yoga, Pranayama, Breathing, Respiratory diseases.

### INTRODUCTION

Breathing sustains life, but natural breathing brings health and happiness. It clears the mind and calms all the emotions and releases the vitalizing flow of energy within us. The most important component of the biosphere is atmosphere air without which nobody can survive. There is nothing like pure air. Every human society, be it rural or urban, industrial or technologically advanced, is affected extremely by pollution of the air<sup>1</sup>.

#### Air Pollution

Atmospheric pollution due to the increase in the concentration of gases other than oxygen in the air is responsible for various respiratory illnesses. Air becomes polluted when the limits of these gases or pollutants exceed the permissible level either by natural or manmade activities<sup>1</sup>. Air pollution is the contamination of air with smoke, dust and harmful gases.

#### Effect of Air Pollution on Human Health

Severe air pollution affects human health and cause many diseases. A variety of air pollutants have been found to cause many diseases such nasal allergy, sore throat wheezes, asthma, chronic bronchitis, allergies and lung cancer<sup>2</sup>. Increasing incidence of respiratory illness in modern times has triggered studies of how yoga can help in handling this problem. Various studies have revealed that regular practice of yoga can prevent and cure respiratory illness.

#### Yoga – Role in Day to Day Life

Yoga is a science practiced in India over the thousands of years<sup>3</sup>. The word yoga comes from the Sanskrit word 'Yuj'

which means to join. Yoga practice mainly consists of Asana (posture – a particular position of the body which contributes to steadiness of body and mind). Pranayama (to control the breathing in a superior and extraordinary way to get maximum benefits and meditation which produces consistent physiological changes<sup>4</sup>). Yoga practice consists of the five-principle including proper relaxation, proper exercise, proper breathing, proper diet, positive thinks and meditation<sup>5</sup>. Yoga is an ancient system, which brings harmony in body and mind. Yoga is skill in action states the Bhagvad Gita, the best known of all the Indian philosophical works. Yoga comprises not only of exercises for improving the skill of the body, it also comprises of techniques that act on the mind and emotions, and provides a complete philosophy for living<sup>6</sup>. Patanjali, often called the "father of Yoga", believed that each individual is a composite of matter (prakriti) and spirit (purusha). He says "Yoga Chitha Vritti Nirodhah" meaning yoga means controlling the activities of the mind<sup>6</sup>.

#### Patanjali's Ashtanga Yoga has Eight aspects as

1. Yama or moral code
2. Niyama or nonattachment
3. Asana or posture
4. Pranayama or regulation of breathing
5. Pratyahara or control of sense
6. Dharana or concentration
7. Dhyana or meditation
8. Samadhi or contemplation



In recent times, medical fraternity is much attracted towards beneficial effects of yoga. Yoga is fundamentally different from conventional medical practice in its approach to health care. Yoga aims to treat illness by improving health on all levels simultaneously and restoring inner harmony. Ill health occurs when the total balance of perfect health is disturbed. Yoga contains elements that address problems at every level – Asanas that relax and tone the muscles and massage the internal organs. Pranayama that slows breathing and regulates the flow of prana. Relaxation and meditation that act to calm the mind and emotions culturing to heal the spirit. The essence of yoga therapy is both preventive and curative. Daily practice of a complete yoga can restore one's natural balance and harmony, bringing positive good health to all parts of our life – physical, mental and spiritual<sup>6</sup>.

### Role of Yoga in Respiratory Illness

Research studies report that many people with serious respiratory ailments have found a solution in yoga. As the mind is calmed the hyper reactivity that causes diseases such as bronchial asthma and nasal allergy is reduced. Yoga is considered to be a good exercise for maintaining proper health and also has a profound effect on the lung functions of individuals. It is claimed that yogic practices help in prevention, control and rehabilitation of many respiratory diseases<sup>7</sup>. People with serious respiratory ailments have found a solution in yoga. If the lungs are permanently damaged, as in chronic bronchitis, yoga teaches how to improve mechanical efficiency of our breathing and make the most of our lung capacity<sup>8</sup>. Yoga has effect on ventilator lung functions, which depend on compliance of lungs and thorax, airway resistance and strength of respiratory muscles<sup>9</sup>. Yoga respiration consists of very slow, deep breaths with sustained breath hold after each inspiration and expiration, so it is considered as a method of breathing and chest expansion exercise<sup>9</sup>.

### Pranayama

'Life is nothing but a series of breaths', says a Hindu proverb. Breath is ever – present, from the moment a baby fills its lungs, to the last gasp of a dying man<sup>10</sup>. A virtual scientific and therapeutic aspect of yoga is Pranayama. Pranayama is the breathing process or the control of the motion of inhalation, exhalation and the retention of vital energy<sup>11</sup>. 'Prana' is the vital force which pervades the whole cosmos. It is in all things and is the bioenergy that activates the human organism. It is closely related to the air we breathe. 'Yama' means control and pranayama is the group of techniques that aims at stimulation or balancing the vital energy<sup>11</sup>. They purify the pranic body and remove blocks allowing energy to flow freely.

Pranayama brings deeper benefits. It teaches us to use every part of our lungs, stimulates our lung tissues, relaxes our chest muscles and energizes the entire system.

### What happens in Pranayama?

During pranayama, inhalation stimulates the system and fills the lungs with fresh air; retention raises the internal temperature and plays an important part in increasing the absorption of oxygen. Exhalation causes the diaphragm to return to the original position and air full of toxins and impurities is forced out by the contraction of intercostals muscles<sup>11</sup>. The success of pranayama depends on proper ratios being maintained between inhalation, exhalation and retention (Figure 1).



Figure 1: Mechanism of Breathing

### Yogic Breathing

Inhale by first expanding the abdomen and then the chest in one slow, smooth motion until the maximum possible amount of air has been drawn into the lungs. Then exhale and allow the air to passively escape from the lungs, accompanied by a feeling of letting go and relaxation. This movement should be smooth from the abdomen to the chest, like a wave. This procedure should be repeated for all inhalations and exhalations during the entire day.

### Jnana Mudra

This position of the fingers is practiced throughout the pranayama exercises. In this mudra, the index fingers are curled and folded so that they touch either the top or the root of their respective thumbs<sup>12</sup>.

Few exercises of pranayama have been selected, which are easy and take a few minutes to practice. Any person can practice this everyday and prevent themselves from getting respiratory illnesses.

1. Nadi Shodhana Pranayama/Anuloma Viloma (Alternate Nostril Breathing)
2. Kapalabhati (Forceful Exhalation)
3. Bhramari (Humming Bee Breath)

### Anuloma Viloma (Alternate Nostril Breathing)

#### Method of Pranayama (How to do?)

Sit comfortably in comfortable posture with closed eyes. Close the right nostril with the right thumb. Now inhale slowly through the left nostril for a count of 5 and fill the lungs. Then close both nostrils and retain the air for another count of 5. Then close the left nostril by left ring finger. Open right nostril, exhale slowly for a count of 5.

After complete exhalation, repeat the process, by slow inhalation through the right nostril, retention and exhalation through left nostril. This is one round. Practice 5 rounds every day (Figure 2).



Figure 2: Method of Anuloma Viloma pranayama)

#### Effect of this Pranayama

1. Cough and cold persons benefit greatly.
2. Heart is strengthened.
3. Blocked nostrils are cleared.
4. Removes mental tension and worries.
5. Induced feeling of peace.

#### Kapalbhati (Forceful Exhalation)

##### Method of this Pranayama

Sit comfortably in erect posture with your fingers in jnana mudra. Inhale through both nostrils, and release contracting the middle and lower abdomen portions. Release the contractions quickly and immediately follow with another inhalation. Gradually increase the frequency. After the round take a deep breath and gradually exhale (Figure 3).

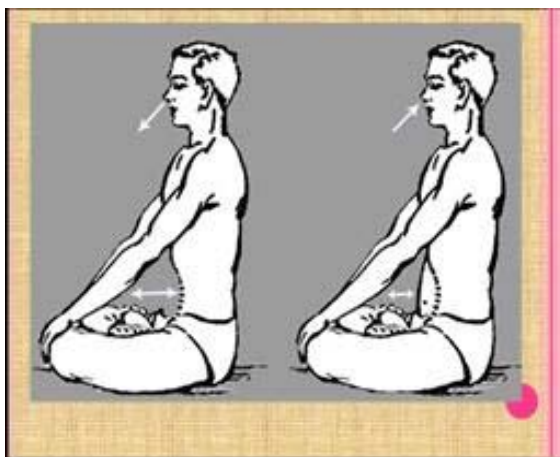


Figure 3: Method of Kapalbhati Pranayama

#### Effect of this Pranayama

1. Aids in combating asthma, diabetes and chronic bronchitis.
2. Cleans the nasal passages.
3. Cleans capillaries of the remotest part of the body.
4. This pranayama exercise is found to be very effective as a remedy for respiratory illness.

#### Bhramari (Humming Bee Breath)

##### Method of this Pranayama

Sit comfortably in erect posture. Inhale slowly and deeply through the nose. Let the inhalation caress the throat area. Then gently plug the ears with respective thumbs and close the eyes with index fingers with other fingers on the forehead. Exhale slowly producing a long and continuous humming sound. Enjoy the sound and vibrations produced. This is one round. Start with 5 rounds and slowly increase the number (Figure 4).



Figure 4: Bhramari Pranayama

#### Effect of this Pranayama

1. Promotes a clear voice. (Recommended for singers and teachers)
2. Clears the throat and nasal passage of infections.
3. Makes an impact on the mind, producing peace and joy.
4. It acts on the nervous system of the body.

#### Ultimate Effect of Yoga on Respiratory System

1. Yoga postures involve an isometric contraction, which increase skeletal muscle strength or improves the strength of inspiratory and expiratory muscles<sup>13</sup>.
2. In Kapalbhati – there occurs full use of diaphragm and abdominal muscles of breathing. It helps in removal of secretions from bronchial tree, clearing up respiratory passages<sup>14</sup>.
3. In Nadi Shodhan pranayama, due to efficient use of abdominal and diaphragmatic muscles, the respiratory apparatus gets emptied and filled more completely and efficiently<sup>14</sup>.
4. Yogic breathing raises the diaphragm at a higher level than its normal, helps in efficient movement of diaphragm<sup>14</sup>.

5. During pranayama there is slow and prolonged inspiration as well as expiration. This stretches elastin and collagen fibers of lung parenchyma and lungs inflated near to total lung capacity. This is a major physiological stimulus for release of lung surfactant into alveolar spaces, which increases the lung compliance<sup>15</sup>.
6. Due to lung inflation, there occurs release of prostaglandins which decreases bronchial smooth muscle tone<sup>16</sup>.
7. Ultimately yoga with its calming effect on the mind can reduce and release emotional stresses thereby withdrawing the broncho constrictor effect<sup>17</sup>.
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## CONCLUSION

The ultimate goal of yoga is to find perfection in life. By integrating yoga into our life, we begin with the awareness of ourselves in our present condition and then use the potentials within us to reach a higher awareness in life. Regular yoga practice improves various pulmonary function tests and is beneficial to improve respiratory efficiency. Pranayama, which is a component of yoga, is one of the best remedies to tackle respiratory illness caused by air pollution and other naturally occurring respiratory illness. The effect of these exercises can be best achieved when practiced at the start of each day. Pranayama when practiced in combination with asana, and meditation help the body and the mind to meet every situation that arises in life from moment to moment.

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