

THERAPEUTIC POTENTIAL OF PRANAYAMA

Yogacharya Dr. ANANDA BALAYOGI BHAVANANI

MBBS, ADY, DSM, DPC, PGDFH, PGDY, FIAY,

CHAIRMAN: INTERNATIONAL CENTRE FOR YOGA EDUCATION AND
RESEARCH (ICYER), Pondicherry, South India. www.icyer.com

INTRODUCTION

Prana is the vital life force that acts as a catalyst in all our activities and Ayama the expansion or control of this force. Thus Pranayama can be defined as the science of controlled, conscious expansion of Prana in our energy body/sheath, the Pranamaya Kosha. Gurus of Vedic times placed great importance on Pranayama and advocated its practice in order to unleash the hidden potential energy known as the Kundalini Shakti. Indian culture has always laid great emphasis on Prana and Pranayama and ancient texts say, "God is breath" as well as "Breath is life and life is breath". Atarva Veda even states, "Prana is the fundamental basis of whatever is, was and will be". In the Prasnopanishad we can find the following statement. "All that exists in all the three worlds is under the governance of Prana". It is said in the Shiva-Svarodaya, "The Prana (life force) verily is one's greatest friend, companion and there is no greater kinsman than the life force". In the Yoga-Vashistha, Sage Vashistha says that when the energy of the life force (Prana) is restricted, then the mind dissolves, like a shadow of a thing when the thing is absent.

The systematic practice of Yoga as codified by Maharishi Patanjali places Pranayama as the fourth limb or Anga of Ashtanga Yoga. He puts it above the Yama-Niyama and Asana and says that one must practice the Yama-Niyama and try to master Asana in order to be able to practice Pranayama. He defines Pranayama as 'The regulation of the movements of inhalation and exhalation'. He also states that by the practice of Pranayama, the darkness that hides the light of wisdom is destroyed. He goes on to advise us that our mind attains fitness for the Samyama practices (of Dharana, Dhyana and Samadhi) through perfection in Pranayama. Patanjali has said that Pranayama is regulated by place, time and number meaning that at various times in our Yoga Sadhana,

different Pranayamas are required to be practiced in order to attain the ultimate spiritual goal of Moksha. Rishi Gheranda devotes an entire chapter (fifth) out of seven to the discussion of Pranayama in his Gheranda Samhita. Gheranda advocates that Pranayama Sadhana be begun either in Vasanta (spring) or Sarat (autumn) to achieve success. He stresses moderation in diet for Pranayama Sadhana and says "Half the stomach should be filled with food, one quarter with water and the other quarter left empty for practice of Pranayama". Rishi Gheranda also advises that Pranayama should be practised facing either East or North and that the Nadis must be purified by either Samanu (using the Bija Mantras) or Nirmanu (using Shat Karmas) methods before Pranayama. Maharishi Gheranda lists the following eight Kumbhakas (Pranayamas) as important in Pranayama Sadhana: Sahita, Surya Bhedana, Ujjayi, Sitali, Bhastrika, Brahmari, Murccha and Kevali Kumbhaka. In the Hatha Yoga Pradipika, Swatmarama says, 'Disturbed breath leads to a disturbed mind, hence, cultivate a steady and quiet breath in order to control the mind and prolong the life". He also says "The Lord of the senses is the mind, the Lord of the mind is the breath; the master of breath is the nervous system; quietness of the nerves and concentration depend solely on the steady, smooth and rhythmic sound of the inhalation and exhalation". He lists the important Kumbhakas or Pranayamas as Surya Bhedana, Ujjayi, Sitkari, Sitali, Bhastrika, Brahmari, Murccha and Plavini. He also warns us that, though Pranayama can cure all diseases, it may cause a multitude of problems if performed wrongly.

VIEWS OF EMINENT YOGA MASTERS

Yogamaharishi Dr. Swami Gitananda Giri has said that Prana needs water and moves over water. This explains why ancient Yogis lived near the water bodies. He used to stress the importance of proper diet and pure lifestyle in Pranayama Sadhana. If the mind is concentrated with Ekagratha on higher positive thoughts, then the Pranic forces will be powerful and manifestation of these thoughts will be even greater. Swamiji taught more than 120 Pranayamas in the RISHICULTURE ASTANGA YOGA system and classified Pranayamas as follows.

- YOGA PRANAYAMAS or ADHAMAS comprising of Pranayamas useful in correction of breathing difficulties, cleansing of the respiratory system,

toning up the nervous system and strengthening the mind. For e.g. Vibhaga, Bhastrika, Kapalabhati, Shetali and Sitkari Pranayamas

- SAMYAMA PRANAYAMAS or MADYAMAS comprising of Pranayamas that are an introspective means to attain sensory control, sensory withdrawal, concentration and meditation. For e.g. Brahmari, Pranava and Savitri Pranayamas
- SHAKTI PRANAYAMAS or UTTANAS that are the higher Pranayamas useful in arousal of the dormant, potential Force known as the Kundalini Shakti. For e.g. Ujjayi and Surya Bhedana Pranayamas

Padma Bhushan BKS Iyengar in his book Light on Pranayama says, "Pranayama has taught me to be punctual and disciplined despite hardships." He also defines Pranayama as the science of breath and says that it is the hub round which life revolves. In his book, Light on Yoga he explains the following interesting analogy. He says, "The mind is like a chariot drawn by two horses that are Prana and Vasana (desires). The chariot moves in the direction of the stronger force and so if the breath prevails, the desires are controlled, senses held in check and the mind is stilled. On the other hand if desire prevails, breath is in disarray and the mind is agitated and troubled."

Sri IK Taimni in his book The Science of Yoga says "Prana is the vital life force that connects matter with energy and mind with consciousness". He claims that the Chittavrittis can be controlled through the manipulation of Pranic currents using the art and science of Pranayama. He emphasizes that Yama and Niyama must be practiced and Asana mastered before embarking on the Pranayama Sadhana. This is because, Pranayama can awaken the potential energy of Kundalini and if the Sadhak is not ready physically and mentally; they may suffer physical and psychological disturbances and may even go out of their mind.

Swami Rama claims that for Hatha Yogis, Pranayama is the final way of liberation. He says "For the Raja Yogis, Pranayama is an important step to awaken the Sushumna leading to the state of deep Dhyana and ultimately the arousal of Kundalini Shakti."

HEALTH BENEFITS OF PRANAYAMA

OVERALL HEALTH AND WELL BEING:

According to the Hatha Pradipika, when the nerves are purified by Pranayama the body becomes slender and lustrous, gastric fire increases, inner sounds are heard and excellent health is attained. Yogi Swatmarama says that Surya Bhedana purifies the sinuses, cures Vata disorders and removes worms. Ujjayi is said to cure the disorders of phlegm as and of the Dhatus (humors). He says that Sitkari creates an enviable condition of body where there is no hunger, thirst, sleep or lassitude. Shetali relieves colic, splenomegaly, fever and bile disorders. He also states that hunger and thirst are alleviated and even the most dangerous of poisons are neutralized. Bhastrika has the capacity to cure disorders of phlegm, bile and gas and helps to increase the gastric fire.

BRAIN FUNCTION:

Memory, intelligence and creativity are enhanced through the practice of Pranayama. This is of great value in children as it helps them to realise and actualize their inherent potential in all walks of life. Yogic breathing through single nostril also increases spatial scores, speed of mental processing and dexterity of the tasks. Mukha Bhastrika improves the speed of reaction and this is useful in mentally challenged children who have a delayed reaction time. Pranayama produces an improvement of neural function at both central and peripheral levels of the nervous system and also produces a balance between the sympathetic and parasympathetic aspects of the autonomic nervous system. This homeostatic 'Samatvam' is of use to combat stress disorders that are the scourge of modern man. Pranayamas such as Nadi Shuddhi and Nadi Shodhdhana are important for cleansing the nervous system and it is said that Nadi Shuddhi can cleanse all the 72, 000 Nadis. Just as water, when run in opposite directions cleanses the water pipe, the process of breathing in the opposite nostrils leads to turbulence and cleansing of the nervous system. Right nostril breathing influences the left brain while left nostril breathing the right brain function. Right brain is the creative, artistic, intuitive aspect whereas left brain the analytical and calculating aspect of our personality. Thus alternate nostril Pranayamas such as Nadi Shuddhi, Nadi Shodhdhana, Loma Viloma and Aloma Viloma help cerebral cleansing and the creation of a balanced personality. As these alternate-nostril-breathing techniques stimulate different divisions of the central and autonomic nervous systems, they have useful implications in treating psycho physiological

disorders associated with hemispheric and autonomic imbalance. Spatial performance of males is better during right nostril breathing and verbal performance better during left nostril breathing. In females spatial performance is better during left nostril breathing. Thus many learning disabilities can be treated using such Pranayama.

EMOTIONAL HEALTH:

Emotions and breath are known to have a deep relationship. Animals such as the rat and rabbit have fast breathing and so are extremely nervous, mentally unstable, emotionally restless and live only for short periods of time. In contrast, the elephant and turtle are slow, deep breathers and consequently have calmer personality and longer lives. Conscious, deep and regular breathing can synchronise and reinforce inherent cardiovascular rhythms and modify baroreflex sensitivity. This may be attained by practice of Pranayamas such as Ujjayi, Savitri, Sukha, Sukha Purvaka and Pranava Pranayamas.

AUTONOMIC AND METABOLIC FUNCTION:

Right nostril breathing correlates with the activity phase of the basic rest activity cycle, it activates the sympathetic nervous system as shown by an increase in the oxygen consumption whereas left nostril breathing decreases sympathetic activity as manifested by an increase in volar galvanic skin resistance. Surya Pranayama results in correction of low blood pressure to normal levels, increased heart rate, increased skin conductance and increased body temperature. This also significantly increases metabolism and this is very useful in obesity and hypothyroidism. Right nostril breathing significantly increases blood glucose levels, whereas left nostril breathing lowers it and this is useful in understanding the mechanism by which Chandra Pranayama helps the diabetic patient. Chandra Pranayama produces a decrease in systolic, diastolic and mean blood pressures and this can be used as a prophylactic means to combat rises in blood pressure associated with everyday stress and strain of life. Left nostril breathing produces a significant increase in the baseline GSR suggestive of reduced sympathetic activity to the palmer sweat glands. This helps us understand the mechanism by which Chandra Pranayama helps to reduce blood pressure of

hypertensives. As diabetes mellitus and hypertension coexist in a vast majority of patients, Chandra Pranayama can be used in such patients with great benefit to reduce both blood sugar as well as blood pressure.

CIRCULATION:

Yogic breathing involves improvement in oxygen consumption with better oxygen delivery, utilization and minimal energy expenditure. A higher work rate with reduced oxygen consumption per unit of work without increase in blood lactate levels has been reported. There is an accompanied increase in peripheral blood flow, along with a decrease in body weight. This is beneficial to patients suffering from diminished peripheral circulation and intermittent claudication. Regular and continuous use of any muscle prevents fat deposition, increases flexibility and heightens performance. Ujjayi with long and short Kumbhaka (breath holding) may exert its effects by alterations in the skeletal muscle activity, autonomic discharge, and cerebral blood flow. This is useful in treating geriatric patients who have impaired cerebral circulation. It is also useful in treating patients who are unable to do more vigorous practices.

EXERCISE AND ALTITUDE TOLERANCE:

Slow breathing rate of Pranayama substantially reduces chemo reflex sensitivity and long-term practice leads to a generalised reduction in chemo reflex. This type of training can be useful in those who have to work at high altitude as well as divers. Patients of breathlessness and laboured breathing can also benefit from such training.

BREATHING DISORDERS AND LUNG FUNCTION:

Kapalabhati produces an increase in the low frequency and decrease in the high frequency band of the heart rate variability spectrum indicating increased sympathetic activity. This may help Asthmatic patients for whom sympathomimetic drugs are life saving in acute asthma. It is also useful in stimulating depressed patients and those suffering from disorders of excessive sleep such as narcolepsy. Lung function has been reported to improve in

numerous studies after Pranayama training and the benefits include prolongation of breath holding time with increase in Forced Vital Capacity (FVC), Forced Vital Capacity in first second (FEV1), Maximum Voluntary Ventilation (MVV), Peak Expiratory Flow Rate (PEFR) and lowered respiratory rate. Patients of chronic lung diseases such as asthma, emphysema and bronchitis can derive immense benefit from these changes in lung function.

RELAXATION:

Breathing is the key to bridging the gap between body and mind is of vital importance in treating psychosomatic disorders. Savitri Pranayama produces a relaxant effect on the cardiovascular system and is extremely useful in hypertension as well as coronary artery disease. The long-term manipulation of breathing by practicing slow deep breathing results in the overstretching of pulmonary stretch receptors and this chronic manipulation may result in vagus blockage, thereby decreasing vagal manipulation. This also leads to a re-conditioning or re-learning of a healthy pattern of breathing with ample tidal volume and a slow rate. Abdominal breathing is correlated with better and more profound relaxation in any schedule of relaxation. Savitri Pranayama when performed in Shavasana produces deep relaxation and this helps alleviate the stress in many psychosomatic disorders such as hypertension, irritable bowel syndrome, peptic ulcer and asthma.

TRADITIONAL VIEWS ON SWARA YOGA

This ancient science gives us a great window of opportunity to understand the ultradian nasal cycle and also utilize this relatively easy practice of manipulating nostril dominance for the benefits of patients. Some interesting observations that are made in relation to Swara Yoga are:

- Major meals should be partaken in the solar Swara to improve the digestive process. This is especially important in treating obesity, diabetes and indigestion.
- Articles of hot potency should be taken in the lunar Swara and this is useful in patients suffering ulcer diseases of the digestive system.

- Patients of respiratory and allergic disorders must follow the rule that articles of cold potency should be taken in solar Swara in order to avoid the exacerbation of their condition.
- It is advisable for patients of obesity and depression to go to sleep in the solar Swara as this helps to activate the entire system.
- It is classically taught in Swara Yoga as well as in the Tamil Siddha Tradition that if the male partner has solar Swara and female partner has lunar Swara during coitus, then the child conceived will be male. The converse would beget a female child. Indulgence in coitus during flow of same Swara of both partners will not result in pregnancy. (These concepts are worth scientific investigation as it would be a very effective family planning method is found to be true.)
- It is taught that when patients suffer an acute attack of headache, cold, hypertension, acidity or asthma, changing the Swara pattern artificially to the opposite Swara can benefit and provide relief within an hour. (Scientific studies of this would be extremely useful as this maneuver can then be included in immediate symptomatic managements of such patients.)

WHY PRANAYAMA IS VITAL TO THE YOGA SADHAKA

We must not lose track of the fact that the purpose of Pranayama Sadhana is not only limited to the physical and mental benefits for the patients but also has a lot to offer to the spiritual aspirant in a wholistic manner.

- Pranayama creates a greater sensitivity and readies the practitioner for the entry into subtler planes of consciousness and existence. Yoga is the art and science of moving from the gross to the subtle until we merge with the Divine and Pranayama is a vital tool to achieve this objective.
- Prana in the body of the individual is part of the cosmic breath of the universal spirit. An attempt is made to harmonize the individual breath (Pinda Prana) with the cosmic breath (Brahmanda Prana) through the practice of Pranayama.

- Gheranda Samhita states that Pranayama bestows lightness or Lagima, one of the Ashta Siddhis (eight psychic accomplishments) on the sincere and dedicated Sadhaka.
- Pranayama Sadhana helps to control the emotions and attain the state of Sama Bhava or Stitha Prajna as described in the Srimad Bhagavad Gita. A person endowed with such balance of emotions and mind is a great boon to society and the world.
- Breath awareness that is achieved through Pranayama Sadhana strengthens the mind and makes it easier for it to move inward. Expansion of consciousness and awareness brings the conscious brain into action and thus relieves the Yogi from the stagnant mechanism of life.
- Emotions can be controlled through the practice of Pranayama and the Shat Ripus (six enemies of the spirit) consisting of Kama (lust), Krodha (anger), Lobha (miserliness), Moha (infatuation), Mada (ego), and Maatsarya (jealousy) are destroyed. We move from being slaves of these emotions to becoming the master of them. Various emotional 'hang-ups' are demolished, as the practitioner becomes a stable human being.
- Practice of Pranayama leads to a pure mind. According to Maharishi Patanjali, it dissolves the covering that hides the inner effulgence. Such a mind is fit for concentration and higher Yoga practices, as Dharana and Dhyana require a calm and focused mind capable of turning inward. Only then can the spontaneous flow into Samadhi occur.
- Pranayama Sadhana confers upon the Sadhak both Japa Sadhana as well as Bhakti Sadhana. The conscious repetition of the Ajapa Gayatri leads to Japa Sadhana while in Bhakti Sadhana the Sadhak absorbs Cosmic Energy by inhalation, brings about union of the Cosmic Energy with the individual self by retention and by exhalation surrenders the self and merges it with the universal self.
- The energetic feeling in the body and freshness in the mind are the immediate results of correct Pranayama practice. These help us to perform all our duties tirelessly and with 'Skill in Action'.
- Practice of Pranayama leads to discrimination (Viveka) and attainment of knowledge and wisdom (Jnana).

- The Yoga path is a difficult path and requires great amount of energy to break through the Tamas or inertia that blocks our progress. Pranayama helps us to build up our energy bank and overcome all obstacles that may arise in our Yoga Sadhana. The true and sincere Sadhak must be extremely alert, aware and conscious as he/she attempts to walk this 'razor's edge' of the spiritual path.

CONCLUSION

Pranayama has immense therapeutic potential in a wide range of psychosomatic disorders and can be used either as a monotherapy or in combination with Asanas and other aspects of Yoga. Importance must also be placed on right diet and right attitude while practicing Pranayama, as the body needs raw materials such as vitamins, minerals and water to heal itself through Pranayama. Pranayama is of vital importance in the Yoga Sadhana or Yogic discipline of any sincere Sadhak who is trying to achieve the state of Yoga. Unless the mind is controlled, the higher aspects of Yoga are not possible and the best and only way to really control the mind is by regular, dedicated and determined practice of Pranayama with awareness, consciousness and purity of thought, word and deed. Pranayama practise can only be possible if the field has been prepared by the sincere practice of the Yama, Niyama and Asana that are necessary preludes to Pranayama Sadhana.

REFERENCES

Aarti Sood Mahajan and R. Babbar. Yoga: a scientific lifestyle. JOY: The Journal of Yoga - October 2003; Volume 2, Number 10

Backon J. Changes in blood glucose levels induced by differential forced nostril breathing, a technique which affects brain hemisphericity and autonomic activity. Med Sci Res 1988; 16: 1197-99.

Bera TK and Rajapurkar MV. Body composition, cardiovascular endurance and anaerobic power of Yogic practitioner. Indian J Physiol, Pharmacol 1993; 37(3): 225-228.

Bhavanani Ananda Balayogi, Madanmohan, Udupa K. Acute effect of Mukh Bhastrika (A Yogic Bellows type breathing) on reaction time. Indian J Physiol Pharmacol 2003; 47(3): 297-300.

Bhavanani Meenakshi Devi. Study Sheets on Pranayama for 6 month International Yoga Teachers Training Course at ICYER, Pondicherry.1998

Bhole M.V et al. Significance of nostrils in breathing. Yoga Mimamsa 1968; 10(4): 1-12.

BKS Iyengar. Light on Pranayama. George Allen & Unwin Ltd, London 1981.

BKS Iyengar. Light on Yoga. Unwin Paperbacks, London 1984.

Block RA, Arnott DP, Quigley B, Lynch WC. Unilateral nostril breathing influences lateralised cognitive performance. Brain Cognit 1989; 9:181-90.

Georg Feuerstein. Teachings of Yoga. Shambala Publications, Inc. Boston, Massachusetts, USA, 1997.

Gitananda Giri Swami. Pranayama: The Science of Vital Control. Presented as a paper at the All India Yoga Chikitsa Seminar, Sri Narayan College, Quilon, Kerala, May 20th through 23rd, 1971.

H R Nagendra. Pranayama the Art and Science. Vivekananda Kendra Yoga Prakashana Bangalore, 1998.

Jella SA. The effect of unilateral forced nostril breathing on cognitive performance. Int J Neuroscience 1993; 73: 61-68.

Joshi N, Joshi VD, Gokhale LV. Effect of short-term 'Pranayam' practice on breathing rate and ventilatory functions of lung. Indian J Physiol Pharmacol 1992; 36(2): 105-108.

Madanmohan, Rai, U.C., Balavittal, V., Thombre, D.P. and Swami Gitananda. Cardiorespiratory changes during savitri pranayam and shavasan. The Yoga review 1983; 3: 25-34.

Mitti Mohan S. Svava (Nostril dominance) and bilateral volar GSR. Indian J of Physiol Pharmacol 1996; 40(1): 58-64.

Naveen K.V et al. Yoga breathing through a particular nostril increases spatial memory scores without lateralised effects. Psychol Rep 1997; 81(2): 555-61.

Pancham Singh (Translator). The Hatha Yoga Pradipika. Sri Satguru Publications, Delhi. SSP Edition 1979.

Raghuraj P, Ramakrishna G, Nagendra HR, Telles S. Effect of two selected Yogic breathing techniques on heart rate variability. Indian J Physiol Pharmacol 1998; 42(4); 467-472

Rai Bahadur Srisa Chandra Vasu (Translator). The Gheranda Samhita. Munshiram Manoharlal Pub Pvt Ltd, New Delhi 1996.

Rai L et al. Effect of induced left nostril breathing on body functions in adult human males. Indian J Physiol Pharmacol 1983 (Supplement 1); 5: 74-5.

Raju PS, Madhavi S, Prasad KVV, Venkata Reddy M, Eswar Reddy, M Sahay BK, Murthy KJR. Comparison of effects of Yoga and physical exercise in athletes. Indian J Med Res 1994; 100: 81-87.

Rakesh Giri, Ganesh Shankar. Swara Yoga - an introduction and its applications. Nisargopachar Varta 2001; January: 18-20.

Ray US, Hegde KS, Selvamurthy. Improvement in muscular efficiency as related to a standard task after Yogic exercises in middle aged men. Indian J Med Res 1986; 83: 343-348.

Selvamurthy W, Nayar HS, Joseph NT, Joseph S. Physiological effects of Yogic practices. Nimhans Journal 1983; 1 (1): 71-80.

Shannahoff-Khalsa DS. Lateralised rhythms of central and autonomic nervous system. Int J Psychophysiology 1991; 11: 225-251.

Shirley Telles, R Nagarathna & HR Nagendra. Breathing through a particular nostril can alter metabolism and autonomic activities. Indian J Physiol Pharmacol 1994; 38: 133-7.

Spicuzza L, Gabutti A, Porta C, Montano N, Bernardi L. Yoga and chemoreflex response to hypoxia and hypercapnia. Lancet 2000; Oct 28; 356(9240): 1495-6

Telles S Nagarathna R, Nagendra HR. Physiological measures of right nostril breathing. J Altern Complement Med 1996; 2 (4): 479-484.

Telles S, and. Desiraju T. Oxygen consumption during Pranayama type of very slow rate breathing. Indian J Med Res 1991; 94: 357-363

Telles S, Desiraju T. Heart rate alterations in various types of Pranayama Indian J Physiol, Pharmacol 1992; 36(4): 287-288

Udupa K, Madanmohan, Bhavanani AB, Vijayalakshmi P, Krishnamurthy N. Effect of Pranayam training on cardiac function in normal young volunteers. Indian J Physiol Pharmacol 2003; 47: 27-33.

Wertz DA, Bickford RG, Shannahkoff-Khalsa D. Selective hemispheric stimulation by uninostril forced nostril breathing. Human Neurobiology 1987; 6:165-71.