



# IYT<sup>®</sup> International Pranayam Yoga Teacher



By IYO<sup>®</sup> International Yoga  
Organisation

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# INSTRUCTIONS AND PRECAUTIONS

While Prāṇayama is a powerful tool for gaining benefits, it is also beset with risks. Hence readers who want to learn the techniques through this book **should follow the Dos and Don'ts** meticulously. Otherwise, they may endanger themselves more than gaining benefits. As mentioned in Hathayoga Pradipika:

अयुक्ताभ्यासयोगेन सर्वरोगसमुद्भवः ॥ (ह.यो.प्र. : २.१६)

Pranāyāmena yuktena sarvarogaksayo bhavē,  
Ayuktabhyasayogena sarvarogasamudbhavah. (HYP : 2.16)

*Prāyāms can eradicate all diseases, If done properly, but if done wrongly, It may propagate all diseases.*

Before starting the practice of Prāṇayama, one should observe certain preliminary instructions which account for quick progress and success in one's practice. The following are the most important ones:

- Complete your ablutions before Prāṇayama. It can be practised before or after taking bath depending upon your convenience.
- Prāṇayama practitioners should take predominantly Sattvika food, avoid smoking and drinking. Wait for at least four hours after meals to start Prāṇayama. Have a light stomach when you practise Prāṇayama.
- Cover the body with comfortable, loose garments or a sheet so that there are no external disturbances (from insects) during practices.
- While doing Prāṇayama, the body should be as relaxed as possible. **The spine, neck and head should be kept erect and centered. Any meditative posture, mainly, Padmāsana or Vajrāsana will be best suited for Prāṇayama. Keep eyes gently closed.**

- During Prāṇīyama, there should be no strain. Breath should not be retained longer than as comfortable. Perform Prāṇayama with natural breathing.
- If you have loose motions, stop Pr'āṇīyama for a few days. Those with heart complaints of any kind or high blood pressure should avoid Kapalabhati and Bhastrika. **Never be in a hurry. Never go beyond your capacity.**
- **Too much is bad.** Just because half an hour Prāṇīyama gives you great benefits, do not increase the time of practice indiscriminately. The hurry to achieve greater benefits by increasing the duration of Pr'āṇayama could be dangerous. **Slow and steady wins the race - is very true in this case.**
- Always practise Prāṇayama with a relaxed mind. Do not be in a hurry; this will bring better control over breath and will automatically lengthen the breathing. Be regular and systematic in your practice. Do not miss your practice except when you are seriously ill. Use common sense and discretion throughout the practice. There should be a feeling of freshness, joy and exhilaration after Prāṇayama.
- Always have a mental attitude congenial to the development of divine qualities as love, mercy, forgiveness, peace and joy. While inhaling you can feel the whole body getting energized and becoming light; during exhalation all negative qualities like lust, anger, greed etc. are removed. **It is the Prāṇa that you breathe and not the mere atmospheric air!**
- Realize the inner life power that underlines the breath. Become a Yogi to radiate joy, light and power around you.





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# QUEST FOR REALITY





*Quest for Reality*

# QUEST FOR REALITY

The quest for reality has been the endeavour of man at all times. But the seventeenth century initiated a new surge, a new line, a new approach in search of Reality. The forefathers of the present era of science and technology: Newton (1642-1727) and Descartes (1596-1650), decided to systematically unravel the mystery underlying the physical aspects of the universe - only physical, down-to-earth concrete things of the world. A tradition of experimentation, observation, objective verification was set up by many persons in different places at different times before coming to a conclusion and presentation of the results as possible. This systematic approach was accepted and adopted by all those scientists who carried on the task of search, maintaining continuity. After four centuries of challenges, upheavals and breakthroughs, we have now understood the physical universe, its structure and the dynamics, as well.

## Structure

That energy and matter are not separate building bricks and matter is essentially bottled up' energy, have been established. Energy is understood to be the basic fabric of this entire physical world. The famous Einstein equation

$$E = mc^2$$

(E, the energy obtained by converting a mass 'm' of this world, C is the velocity of light) condensed this wisdom into the crispest of presentations, And, thus, the structure of the physical universe was understood.

## Newton's Law of Motion

The Newtonian mechanics described the laws of Motion.

The three laws of motion

1. Every object continues in its *state* of rest or uniform motion unless disturbed by an external force.

2. The force is directly proportional to the acceleration produced in the object  $F = ma$ .
3. Action and reaction are equal and opposite.

These laws of motion govern the physical universe around us. To find a cause to a phenomenon became the core of scientific investigations. In the early fifties of 20th century came the new breakthrough enlarging the spectrum of the classical mechanics with deterministic approach into Quantum Mechanics as we entered into the subtler world of this physical universe. Both in dealing with extremely small dimensions like atoms and molecules and astronomical dimensions related to galaxies, milky ways, etc., the Newton's laws failed and more flexible probabilistic laws the core of Quantum Mechanics had to be used. While Newton's laws of motion sufficed to calculate the force, speed and acceleration with normal speeds, they failed when used for extremely high speeds nearing the velocity of the light the speeds encountered with extremely small particles like electrons, neutrons etc. Einstein's Theory of Relativity generalised the laws of Newton which adequately described the laws governing very high velocities and of extremely small dimensions. These generalised laws of Einstein, as well as, the probabilistic mechanics reduce themselves to Newtonian or Newton's laws of motion and Deterministic Mechanics at normal speeds and usual dimensions.

Space-time continuum and the Uncertainty principle (see box on page 5) enlarged the vision of science into realms of greater freedom and flexibility.

As the probe into subtler world of fundamental particles intensified and the scientists started looking into the mechanism of creation, physicists found something totally new- 'black holes', tachyons travelling at velocities greater than light, to name a few. Besides, Quantum Physics became the talk among physicists. Further, the very process of observation or measurement changes the behaviour of these fundamental particles. **The observer can not observe without disturbing the observed** the facts which have shaken the entire scientific objective experimentation as the basis which

## Quest for Reality

formed the core of science for the last four centuries. “Now we are at a turning point. Subjectivity is to be somehow fitted into the scientific experimentation”, say many Nobel Laureates. And that is the challenge before the scientific researchers.

Knowledge regarding DNA and RNA molecules and their behaviour, brain cells and their functioning have started bringing deeper insights. The researchers in life-sciences and neuro-sciences have started considering life and consciousness as probably separate from functioning of DNA RNA molecules and brain cells.

### Uncertainty Principle

It is impossible to determine with accuracy both the position and the momentum of a particle (electron) simultaneously. Higher the accuracy of the position known, lower will be the accuracy of the momentum. determined Range of position  $\Delta x$  and the range of momentum  $\Delta p$  in have the following relations

$\Delta x \Delta p \geq \frac{h}{4\pi}$  Where ‘h’ is Plank's constant

Hence, there is an ‘uncertainty’ associated with the determination of either the position or momentum of a particle exactly. As stated by Heisenberg, this arises due to the dual nature of matter: a moving particle, whatever nature it has, wave properties are associated with it. The wavelength  $\lambda$  of such waves are called de Broglie wavelength  $\lambda$  which can be calculated by the formula

Where ‘m’ is the mass of the particle and  $v$  its velocity. It also implies that any energy wave with a wavelength  $\lambda$  has also the mass ‘m’ associated with it.

Thus, after nearly four centuries, growth of science has led us to enter into subtler dimensions of the universe. Our future research will be to unravel the mysteries related to ‘the subtler than the physical world’ : life (Pr'ana). mind. consciousness, intellect, ego, spirit, soul consciousness and so on.

had made headway, in not only understanding the structure of the inner world, but also dynamics which govern different layers of consciousness. That wisdom is contained in the Science of Yoga or Spirituality.

While body-mind problem has long intrigued scientists, Indian sages could unravel the mystery by understanding Prana as the basic fabric which bridges mind and matter, as well. The dynamics and laws of Prana were understood through systematic practice of Pranayama to gain mastery over Prana.

Prof. Josephson, the Nobel Laureate from Cambridge University, believes **that Upanisads can give modern physicists new directions while probing into subtler dimensions of this creation. Prana should be studied and its mysteries unravelled to progress in search for Reality.**

## All Pervasive Reality

There is a total continuity in the entire creation, though, there appears to be a leap in the degree of freedom from one level to another. Creation builds up this freedom systematically and gradually as can be seen through the transitional manifestations of Prana through radioactive molecules, drosera plant, monkeys, human geniuses or mystics, to name a few.

Through the study of such transitional manifestation, we will be able to unravel the mysteries of the laws of Prana at different levels. Hence the transitional manifests are the bridges between one level to another level of manifestation of Prana exhibiting apparently new facets of freedom. Like locomotion and instinctive actions differentiate the animals from the unmoving plants rooted firmly in the earth and the actions powered by human intelligence are so different from instinctive actions of the animals.

Utilisation of freedom in Prana in the right direction helps everyone to grow and reach higher and higher levels of existence.

“The goal of human life”, Swami Vivekananda says “is to manifest this divinity”. The elements of freedom in Prāna is divinity, greater the manifestation, greater will be the growth: greater the freedom and bliss, greater will be the unravelling of the higher laws of Prāna or the universe and thus, greater and greater power.

The highest growth, for all practical purposes, is the Anandamaya Kosha or Brahma Loka. the manifested Absolute, as Sri Aurobindo puts it. But ultimate is the Moksha.





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# THE BASIC FABRIC OF CREATION



# THE BASIC FABRIC OF CREATION

Once I happened to visit a botanical exhibition. I was fascinated by a 'Drosera' plant. When an insect sits on the flower of the plant, it secretes a sticky fluid, traps the insect and eats it up.

All of us have witnessed the "Touch-me-not" (mimosa pudica) plant whose leaves fold up instinctively when you touch them or blow on them.

The sense of touch is evident in these higher forms of plants as an instinctive action either for food or for self-protection. Such plants are in transition towards the animal species where life manifests at a higher degree.

Radio active elements like Uranium, Radium etc. release rays of energy like electrons and gradually decay into lighter metals. But this decay may take decades or centuries depending on the 'half life-span' of these elements. Manifestation of activity in these partly inert mineral world is again a transitional one towards greater manifestation of life from the inert world towards the plant kingdom.

A group of people walking across gardens and groves to a neighbouring town found that monkeys were a menace destroying the finest of mango groves in spite of nearly five watchmen protecting it. But, the neighbouring orchard with colourful oranges guarded by a single watchman who was most of the time sleeping, remained untouched. Out of curiosity, when one among the group, tried to find the reason, he was told that when monkeys tried to eat the oranges, the bitter juice of the peel would irritate their eyes. And this was how the orange orchard was saved. "But", the watchman continued, "I saw yesterday a monkey pull out an orange, peel it behind its back and eat it up. I had to drive it out. Now we are also in for trouble.

Intelligence is obvious in such 'grown-up' monkeys or ape man, a transition from animal *species* to human spectrum.

Shakuntala Devi is born with a computer brain. For her, multiplication of two twenty-digit numbers takes hardly any time. Division of long numbers is spontaneous. Even the most sceptical, critical, hard-core scientists are bewildered at her computer-like capacity.

Super intelligence, intuition and miracles are called so, as they are not normal. Ordinary human beings possess no such capacities. The evolved geniuses are in transition to the realm of Superhuman beings.

## Praga, the basis

Nature is bountiful, Amidst the diversities, if we look deeply, there flashes the unifying truth. Transitions are explicit openings for such insights into Reality. Underlying the manifest diversities is a continuity of 'life', threading the beads of all creation. And that life entity, the Basic Fabric of the whole creation is called Praqa in Vedic and Upanisadic lores.

Atharva Veda explains Prñqa in a wider sense :

**प्राणः**

Prñab Praja anu vaste pita putramiva priyam.

Priino ha sarvasyes"varo yacca Priinati yacca na. (11.2.4.10)

***Prays** Is.to all persons os father is to his dear children.  
Pzwya Is the hard-core of all creation which breathes and  
breathes not. This chazactezistic of PrSya indicates its all  
pezvasl reness.*

**अपानति**

Apanati pranati puruso garbhe antara,

Yada tvam prana jinvasyatha sa jayate punab. (11.2.4.4)

*The ch'ld in the mother's woab breathes. O Pz na, when  
POH TO Ve in him, he takes birth.*

Likewise in Pras'nopanisad it is said

Pranasyedam vas"e sarvam tridive yat pratisthitam,  
Mateva putran raksasva s"ris"ca prajñam ca vidhehi na iti.

*All that exists IM d11 the three worlds is under the go romance of Polys. O Patna, (please) protect as, your children as mother and grant us the (real) wealth and wisdom.*

This is the most comprehensive definition of Prñna found in Upanisads and Yoga lore. Definitions found in other Upanisads describe only limited aspects of Prana. For example that which gives us the basic stuff of Pranamaya Kos"a is also called Prana. Prâpa is also used in the limited sense of breath or just inhalation.

प्राणं देवा अनु प्राणन्ति । मनुष्याः पशवश्च ये ।

sfoit k ptmawfg. i a+oazafgxga3 ii (&.a.t.1. e)

Pranam devii anu prñnanti, Manusyih pas"avasca ye.  
Prño hi bhiitñnamayub, Tasmiitsarvñyusamucyate.

*Taittiriya Upaniṣad (Brahmānanda Valli) says : gods breathe Prāṇa; men and animal also do that.*

Prana in other words is called life ( ). This is in all beings.

Modern Science has found that the basic fabric of this entire physical world is nothing but Energy. Matter is also 'bottled up' energy, as described.

## Energy Spectrum

Energy is featured by frequency and the associated amplitude. The relation is described below

where  $\lambda$  is the wavelength and  $\nu$  is the frequency, the relation between energy  $E$  and the frequency  $\nu$  is given by :

$$E = h\nu$$

Where  $h$  is Planck's constant and  $c$  is the velocity of light.

The electro-magnetic spectrum of energy is shown below, which clearly delineates various realms starting with matter at one end of the spectrum and field at the other end.

### Decreasing wavelength $\lambda$

| Fields | Radio Waves | Infra Red            | Light | Ultra Violet | X rays | Cosmic Rays | Matter Particles |
|--------|-------------|----------------------|-------|--------------|--------|-------------|------------------|
|        |             | Increasing frequency |       |              |        |             |                  |
|        |             | 1. Long waves        |       |              |        |             |                  |
|        |             | 2. Medium waves      |       |              |        |             |                  |
|        |             | 3. Short waves       |       |              |        |             |                  |

### Electro-magnetic Spectrum Manifestation of Energy

The region of light is almost at the centre of the entire electro-magnetic spectrum. The behaviour of light as waves and as corpuscles is revealed by interference experiments and photo-electric effects. Thus, the dual nature of light (wave or matter) is well-established. As the frequency increases, we move through the regions of ultra-violet, X-rays, Cosmic rays etc. and the matter itself. **Energy is directly proportional to frequency and hence, energy is packed up into lesser and lesser space until it gains 'matter-ness'.**

On the other sides of light (lower frequency regions), are the regions of Infra-red (heat) and Radio waves leading to fields with extremely low frequencies and very high amplitudes. The magnetic and electrostatic fields are some examples.

Energy, we have thus seen, is the very basis of this physical universe. Prana on the other hand, is the basic fabric

of the entire creation. Thus, Energy' is the grossest manifestation of Prāna and is at one end of the spectrum of creation. Grossest because, it is having the least freedom, indicated by Uncertainty Principle, there is total inertia. We even venture to say that there is no life, no Prana. Drawing similarity, from the energy spectrum, we present a spectrum of Prana.

In the vegetable kingdom, the manifestation of life is in the form of reproduction as a self-actualisation process, is quite explicit. This increasing freedom to move, to act and to change by itself, is the difference between Energy (the basic stuff of the physical universes) and Prana in subtler manifestations (at other levels of existence: vegetable, animal, human etc.). **Greater the subtlety, higher will be the freedom.**

|                  |                      |                   |                 |                       |
|------------------|----------------------|-------------------|-----------------|-----------------------|
| Mineral<br>World | Vegetable<br>Kingdom | Animal<br>Species | Human<br>Beings | Superhuman<br>Regions |
|------------------|----------------------|-------------------|-----------------|-----------------------|

### Spectrum of Prāna

New dimensions of freedom emerge in Pranic manifestations while we move from mineral world to vegetable kingdom and to animal species. (where sleep, walking and running, apart from eating and procreation as instinctive actions have emerged as special facets). The common features between the animal species and human beings are brought out effectively in the following verse :

आहारनिद्राभयमैथुनं च सामान्यमेतत् पशुभिर्नराणाम् ।

बुद्धिर्हि तेषां अधिको विशेषो बुद्धिर्विहीनाः पशुभिः समानाः ॥ (भृत्हरि नीति शतकम्)

Aharanidrābhayamaithunam ca  
samanyametā pas"ubhirnaranam,  
Budhirhi tesam adhiko x'iseso  
buddhirvihinā pasubhih samānah.

*Hunger, sleep, fear and procreation are instincts which are common to both animals and human beings. The power of analysis and discrimination or the faculty of intelligence*

*are the specialiff' in an. And mzfbour rAar, he 1s equl alent  
TO PM BMJMDI.*

This new facet of Priina called citta M or mind is a very subtle manifestation of Prana. Just as classical mechanics is featured by single cause-effect relationship and by determinism, instinctive actions in the animal species are deterministic. Probability theory has to be used. The degree of freedom is more. Similarly, in the region of mind, there is tremendous freedom. It can move in one direction (single solution), in many directions (creative solution) and on the other extreme it can just be "quiet" of the non-thinkers. We, as human beings, all possess these three degrees of freedom at the action level.

In the words of commentator Saiikara this is

Kartum akartum anyatha va kartum s"akyam.

*To do, not to do, oz to do dlFFerently, is the freedom we  
UJ possess.*

By using this freedom, a human being can start evolving and growing faster than ever before. A normal human being will then become a great man and a superman. At these superhuman levels of manifestation of the Prana, bondage of the body in the form of limitations of food and thirst is first overcome. The bondage of gravitation is next released. As the mind and emotions get purified on further growth, the bondage of desires and unsteadiness of mind is broken. Clear vision dawns and dominates. All actions go on in tune with the cosmic laws which govern the entire creation. Associated with this increased freedom are the higher capacities, power and bliss. In the subtlest form Prana is featured by maximum bliss and almost with no apparent, explicit activities. At the source of this is a state of (mauna) ‘Silence’ also called

| <b>Levels of Consciousness (Taitt. Up : 2.8.1-4)</b> |                           |
|--|---------------------------|
| <b>Levels of Consciousness<br/>LOKAIJ</b>            | <b>UNIT OF<br/>ANANDA</b> |
| 1. Manusya Lokah (Human level)                       | 1                         |
| 2. Manusya-Gandharva lokah                           | 1 0 <sup>2</sup>          |
| 3. Deva-Gandharva lokah<br>(Godly Super Beings)      | 10 <sup>4</sup>           |
| 4. Pitrnám-ciralokah<br>(Abode of the fore-fathers)  | 10 <sup>6</sup>           |
| 5. Ajanajana deva lokah                              | 10 <sup>8</sup>           |
| 6. Karma deva lokah<br>(Work—based gods)             | 10 <sup>10</sup>          |
| 7. Deva lokah (gods)                                 | 10 <sup>12</sup>          |
| 8. Indra lokah (Abode of the King of gods)           | 10 <sup>14</sup>          |
| 9. Brhaspati lokah (Preceptor of Indra)              | 10 <sup>16</sup>          |
| 10. Prajapati lokah (The Lord of creatures)          | 10 <sup>18</sup>          |
| 11. Brahma lokah (Abode of the Creator)              | 10 <sup>20</sup>          |

pure consciousness with least inertia. This is the causal state of Prāna, the original, subtle end of the Pranic Spectrum. The grossest end of the spectrum is matter with least consciousness.

The different superhuman levels are designated by different names possessing higher powers and increasing quantum of bliss (Ananda). These different states are called : (Lokah). The entities who live in these stratas of creation as higher manifestation of Prāna possess newer and higher degrees of freedom and levels of bliss as described in Taittiriya Upanisad II (2.8.1-4).

This table shows the capacities or degrees of freedom which Prana acquire in the ladder of growth through these lokas.

Summarised below are the different dimensions of manifestation of Prana

### Prāna and the Manifests

|                        |   |
|------------------------|---|
| Mineral world          | Least Prana (consciousness) Maximum inertia - 'matter-ness'.  |
| Vegetable kingdom      | :Reproduction, inner activity; no locomotion.   |
| Animal species         | Locomotion, instinctive actions triggered by thirst, hunger, fear and procreation.  |
| Human beings           | Action governed by discrimination bound by laws of physical body (consciousness and inertia in a balance).  |
| Gandharva & Pitr lokah | Freedom from hunger, thirst and Pitr lokah gravitation; vital (ethereal) body but bound by contoural limitations.   |
| Deva Lokab             | Free to choose shape and grossness of body at will. Can move through entire strata from vegetable level to Deva loka—eternal youth. Bound by desires, emotional upsurges, selfishness and fear. |

Brhaspati & Prajapati lokab Sheath of wisdom, free from all individual desires and selfishness; total knowledge working in tune with the cosmic laws.

Brahma lokab : The causal state of the whole creation. Pran a possessing the highest degree of subtlety, flexibility, capable of traversing the entire strata of ci eation. No individualization.

(Consciousness—highest - Inertia least)  
The level of almost total Silence manifested Absolute, maximum Bliss, Knowledge and Freedom, Perfection, Reality for all practical purposes.

Para Brahman  
Paramñtman or  
Moksa **Sthiti** : All pervasive Reality beyond space, time and causation - the source of Prñ9a.

Thus, we have seen the following aspects of Prana

1. Prana a self-manifesting life entity, capable of chanp•ing itself, is the basic fabric of this entire creation.
2. Energy is at the base of all material world and that is the grossest end of Pranic spectrum (manifestation).
- s. Prñqa manifests better in the plant kingdom and a new dimension of freedom emerges in each of its higher subtle levels: animal species, human spectrum, Gandharva and Pip Lokah, D•va Lokah, Brhaspati and Prajñpati Loks and Brahma Lokah.
4. There is a continuity between different stratas of prñic manifestations and study of the transitional manifests helps to understand the laws of Praqa at different levels.
5. The speeding up and grossification of Prana is called creation; the slowing down and expansion of Prana are the essential features of growth towards its source. Reality.

6. The process of grossification and growth is completely reversible and goes on eternally in a cyclic way.
7. The role of human beings would be to unravel the laws of Prana and move on the ladder of growth for a life of fulfillment through manifestation of Prāna to greater and greater degrees.
8. The highest manifestation is the state of total freedom, bliss, knowledge and Sakti at the level of Brahmii and is in tune with the cosmic laws.
9. The source of Prana is verily the all pervading, unmanifested, ever existing Brahman, also called Atman. It is the Moksa sthiti from where **Priina, which essentially is a** mov< iiiieit. takes bit th. Front it emerges all creation.



*Kirlian photograph  
of the*

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# THE SEEN AND THE UNSEEN DIMENSIONS OF HUMAN BEINGS





**Kirlian Photo of a Leaf**

# THE SEEN AND THE UNSEEN DIMENSIONS OF HUMAN BEINGS

Subsequent to the discovery by Kirlian in 1961 in Russia, the **Kirlian photography** drew many researchers from all over the world to examine its validity and usefulness. As per Kirlian, the new type of photography, hinted at an extra-material existence of 'life' or 'mind' or 'consciousness' as revealed through his photographs of leaves, plants, stems, roots, coins, stones, fingers, palms, etc. to name a few. A sort of light or glow, bigger than the object would appear around the object that was photographed. This was termed as 'aura', Thousands of his photographs had revealed this new phenomenon of nature.

A professor brought to Kirlian two leaves which looked exactly same to the naked eye and asked him to photograph them. Kirlian soon went in; for the first leaf he got the aura, bigger than the leaf, as usual. However, he could not get any photo of the second. The photographic films were completely blank in spite of his repeated trials. He could not solve the mystery. Exasperated, he came to the professor who, on hearing the facts was excited. He told Kirlian that one leaf was healthy and the other was about to die from a tree. The professor congratulated Kirlian on his discovery.

Many research institutes built Kirlian units. In the late sixties and early seventies, there was a big boom in Kirlian research. A few universities in the USA started departments for pursuing the research with scientifically acceptable rigours. This could happen only after the demonstration of the phantom leaf effect at the Stanford University in the 1960's.

Kirlian photo was taken of a leaf and was repeated after cutting off 1/8, 1/4, 1/2 and more than a half. The photos remained almost unchanged in all the cases from 1 to 4 but vanished completely in the fifth case.

This interesting phenomenon was tested by many other investigators. To accept something non-material was not the lot of the hard-core scientists. Rigorous controlled

experimentation, therefore, started in full swing in the UK, as well as in the USA. The published material in the early seventies shows a maze of controversies where the main contention was that Kirlian photographs could as well be just artifacts and cannot stand the test of repeatability. The factors which influence the photos are too many and humidity can be one of the major factors which produce such artifacts. One of the researchers, in fact, showed that he could not get any Kirlian photos if the sweat was removed by a good wash of the palms.

Standardisation of techniques which would stand the rigours of repeated testing to produce essential data for scientific research could not be established. Consequently, by late seventies, the boom subsided and Kirlian research was almost stopped.

It was on March 1, 1987 that Dr. Douglas Dean, a pioneer in Kirlian research in USA, presented his continuing findings with Kirlian Photography as applied to stress effects, phantom effects, Gellar effects, changes during last hours of life, natural childbirth etc. at the International Conference on Energy Medicine. He claimed that all the photographs were taken from surfaces which were moisture-free.

The 1987 International Conference of Energy Medicine held at Madras, organized by the Institute of Magneto-biology, brought to light that the so-called Kirlian photos were none other than the result of the well-known age-old CORONA discharges from these surfaces.

It appears that the interest has again been revived to understand the phenomenon and many other researchers have started working in this field again since 1985.

## **Corona Field Interactions**

Dr. Iliamesh S. Chauhan and his team have been the pioneers in this field to bring out the fact that the corona discharges vary from substance to substance, person to person

and in the same person depending on his mental and physical state. Many of the variables associated with Kirlian experiments - thumb pressure, moisture, temperature, etc, which cause variations in the photographs, (leading to doubts that these photos may merely be artifacts), have all been taken into account and some degree of standardisation has been achieved. Large number of photos taken of cancer patients (with and without hand wash and the rate of recovery) have clearly shown that these photographs can be used for early diagnosis of cancer. The work was the core of a Ph. D. dissertation.

The researchers have now found ways to collect these emanations through sensors and probes directly and feed those signals into computers for analysis and presentation of results. Many of these computer-generated results have started making a new breakthrough in this field, opened by Kirlian nearly two and a half decades ago.

At this time when science itself is in transition and the best of the Nobel Laureates have started entering into new areas of subtlety and sophistication, bio-electrography is becoming more relevant probably more than ever before.

Do these photographs represent 'aura' seen by our yoga masters and ancient seers around the face and head of great people and shown artistically by artists and painters all over the world? Do they have any connection with Prana or mind or Consciousness?

Is it a proof that something beyond exists apart from matter atoms and molecules in living systems? To what extent can such photographs or computer-generated curves be used for medical diagnosis or understanding Gellar effect or the phenomenon of life or death?

We have to go a long way yet to answer these questions. Science has to start unraveling the mysteries of nature related to life, mind, emotions, intellect, ego, consciousness, etc.

It is interesting to note that the Upanisads have **something** to say about such phenomenon and their relationship with Prana. The Taittiriya and the Chandogya Upanisads present detailed investigations undertaken by studies.

In Taittiriya Upanisad the teacher who was guiding the students was Varuna - a sage of great renown. Bhrgu his son was also his student. Bhrgu was asked to search for Reality thus .

यतो वा इमानि भूतानि जायन्ते । येन जातानि जीवन्ति ।

यत् प्रयन्त्यभिसंविशन्ति । तद् विजिज्ञासस्व । तद् ब्रह्मेति । । तैत्ति. उ. : ३.१.१।

Yato vâ lmani bhūtāni jāyante,

Yena jatani jivanti,

Yat prayantyabhisamvis'anti,

Tad vijijñāśasva, Tad Brahmeti. (Taitt. U. 3.1.1.)

*Find that from where all beings are born, that supports all life and that into which all go back; that is Brahman.*

The first answer he got is in tune with what scientists have found today:

Annam Brahmeti vyajñnat. (Taitt. U. 3.2.1.)

*Matter (Anna) is verily the Reality (Brahman).*

The student is asked to go deeper and unravel the mysteries further thus:

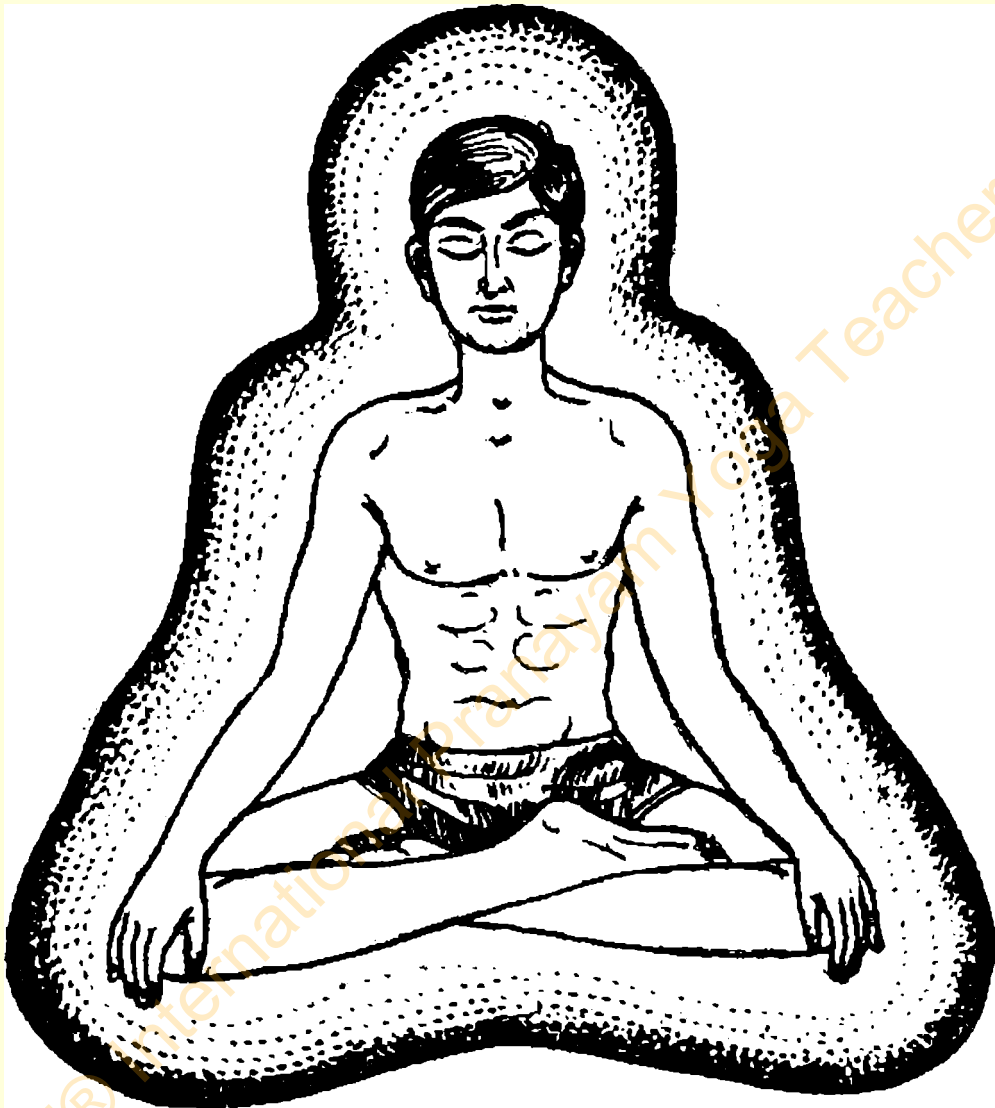
तपसा ब्रह्म विजिज्ञासस्व । तपो ब्रह्मेति । तैत्ति. उ. ३.२.१।

Tapasa Brahma vijijñāśasva, Tapo Brahmeti. (Taitt. U. 3.2.1.)

*Find Brahman through Tapas—experiential and experimental investigations, Tapas itself is Brahman, Reality, can be reached by Tapas and the **experience** itself is Brahman.*

## Prāṇamaya Kośa

Now Bhrgu opens himself up to understand and unravel the mysteries of the life principle Prana enlivening all creations



as more fundamental than matter.

Prano Brahmeti vyajanñt. (Taitt. U. 3.3.1.)

*He discovered Prâya as Rezllty.*

He also unveils the secret of a subtle body which we all possess called **vivpol** Pranamaya Kosa which pervades the entire Annamaya Kosa, our material body :

Anyo'ntara Atma Pranamayab, Tenaisa Piirnab.

(Taitt. U. 2.2.1.)

We can find details of the Pranic body in Vedic, Yogic and Tantric literature. A schematic structure of the contour of Pranamaya is bigger than the contour of the physical body, the Annamaya Kos" a. Traditionally, the effulgent aura' depicted round the face and head of great masters, Yogis and Seers represent a highly developed Prñnamaya Itos"a. While the normal eye cannot see this Prñnic body, an insight developed by systematic Yogic training• can clearly see the Praqic body. Many advanced Sadhakas in the field of Yoga do get this capacity which enables them to recognize the aura and this capacity is termed as Auric V i s r o n . Considering several facets of Bio-electrography and K iilian photography, it looks as if we are heading towards unraveling the mysteries of this Pranic Body and its structure. More anatomical details of the Prânic body, available in our literature, will be presented and made use of, in the later chapters.

The dynamics or physiology of Prana describes various functions in the Pra9 amaya Kosa. Their rel ati on i o the functions in the gross physical body (Annamaya Kosa) about which Upanisads talk in great depth and detail will now be presented.

## **Varigjha and Pañca Prñz;as 9fl ऋणः**

Prana, the basic life fabric of the entire creation manifests itself in Pranamaya Kosa in five major forms

Prāna, Apāna, Samana, Udana and the fifth Vyana.

(Siva 5.3.4)

हृदि प्राणो गुदेऽपानः ।

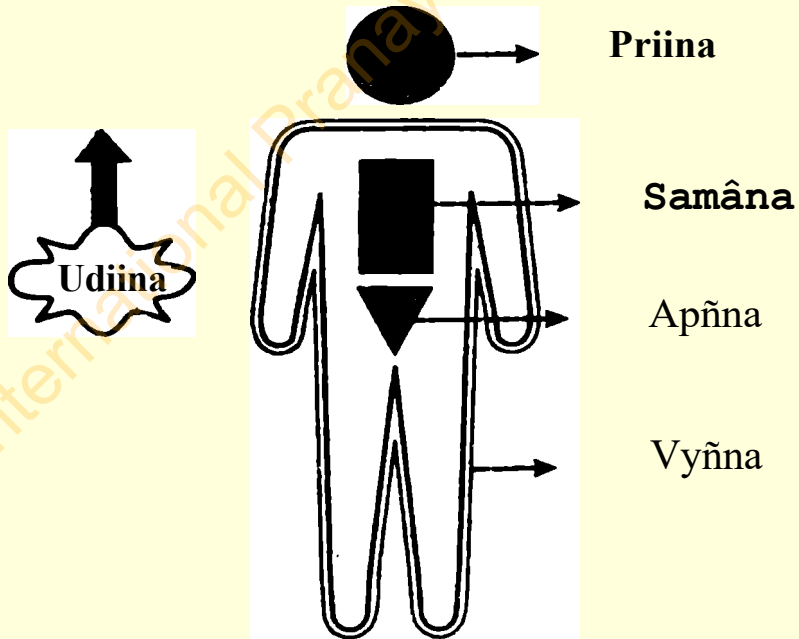
उदानः कण्ठदेशस्थो व्यानः सर्वशरीरगः ॥ शिव सं, ३.७॥

Hr̥di prano gude'pdnah samano nabhimandale,  
Udānah kanthadesastho vyanah sarvas'ariragah.

(Siva 5.3.7)

*The seat of the Prāna is the chest; of Apāna - the anus; of Samana - the region above the navel; of Udana - the throat, while the Vyana moves throughout the body.*

Since the same term Prana is used at two levels of manifestation, we use the term **Varistha Prana** (the main Prana) for the basic life fabric.



Pañca PrandS

Varistha Prana

|       |        |        |       |       |
|-------|--------|--------|-------|-------|
| प्राण | अपान   | समान   | उदान  | व्यान |
| Prana | Ap'ana | Samana | Udana | Vyāna |

The term \$fHI Prana in Samskrta means a continuous movement which characterises all these five Pranas.

We use the def.initions of these terms directly from Prasnopanisd प्रश्नोपनिषद्

### Prāna, Apāna and Samāna

प्राणः

एष ह्येतद्धृतमन्नं समं नयति तस्मादेताः सप्तार्चिषो भवन्ति ॥प्रश्न.उ. : ३.५.१

Payiipasthe'panam caksuhs"rotre mukhanasikabliyam  
pranab svayam prñtisthate madhye tu Samanah,  
Esa hyetaddhutamannaIn sammam nayati  
tasmñdetah saptñrciso bhavanti. (Pras"na. U. : 3.5.)

*Apana works doon words and l.s responsible for excretion,  
uFnation and seminal discharges.*

*Pzlya has for its operation, the region of the eyes, the ears  
face and the nose go rezlNg the senses of seeing, hearing,  
testing, smelling and most important, breathing.*

*Samāna functioning in the abdominal regions is that  
which maintains balance between Prāna and Apāna. The  
digestion is controlled by Samāna.*

Thus, the sevenfold activities of the body physiology is carried out by these three aspects of Varistha Prāna - Prāpa, Apāna and Samana.

Vyāna

द्वासप्ततिर्द्वासप्ततिः प्रतिशाखानाडीसहस्राणि

*Atraitadekas"atam nad nan tâssm s°atam  
s“\*txmeka>‘Yasy\*°m dva°suptat>“rdr»sxptatij pram:i»iiliz-  
nādisahastrāṇi bhavantyāsu Vyānaścarati. (Prašna. U. : 3.6.)*

*There are a hundred and one main Nâcli's (chanael.s or tubes for Rrays) Jn Ltte Prapama yr Kos!a. In each one of these there are 100 branches which ha ve 72,000 nSc11°s each. And thorough all these how's the Vy0na. Vy0no go rem.s the sense of touch and the Riow OF IMPalscs in the nerve.«.*

## UPna

पापेन पापमुभाभ्यामेव मनुष्यलोकम् । ।प्रश्न. उ. : ३.७।

Athaikayordhva udiinab punyena punyam lokam nayati  
papena papamubhñbhyñmeva manusyalokam.

(Prasna.U. : 3.7.)

*And that which flows upw'ards Is f/die which carries the virtuous to the virtuous world and the sinful to the sinful w'orld and Mose hering both, to the world of human beings.*

Udana is that part of Varistha prana which is responsible for all physiological functions in the upward direction like antiperistalsis, belching and vomiting. In the Priinamaya Kos"ra, Udana flows through the central main Nadi Susumana (which is popularly known as Kuqdalini Sakti). Normally Susumna is closed in most human beings. In all, Udana carries at the time of physical death, the subtle bodies (Jivatmñ or the individual soul) into either the Svarga (heaven) or Naraka, (hell) depending upon whether virtuous deeds or sinful acts dominated the life of such individual. When these imbalances' are overcome and a balance between the good and the bad is struck, the individual takes birth in this world of human beings. Udana is the carrier.

तेजो ह वा उदानः । । प्र. उ. : ३.९।

Tejo ha va udanah. (Pras"na. Up. : 3.9.)

*Edens Is lecfured by brightness and li'ghtness.)*

These reduce at the time of death and return at the time of birth again. In Prasnopanisad it is said:

उदानस्तस्मादुपशान्ततेजाः । पनर्भवमिन्द्रियैर्मनसि सम्पद्यमानैः ॥ प्र. उ. : ३.९।

Udanastasmadupasantatejñh,  
Punarbhavamindriyairmana.si sampadyamñnaih.  
(Pras"na. U. : 3.9.)

*Prāṇa, Apāna, Samāna, Udāna and Vyāna are thus the five functional manifestation of Variṣṭha Prāṇa.*

यथा

प्राण इतरान् प्राणान् पृथक् पृथगेव । ।प्रश्न.उ.३.४.।

Yatha samradevadhikrtan viniyuiikte,  
Etan gramanetan gramanadhitistha -  
svetyevamevaisa prana itartan pranam  
prthak prthageva sannidhatte. (Pras"na.Up.3.4.)

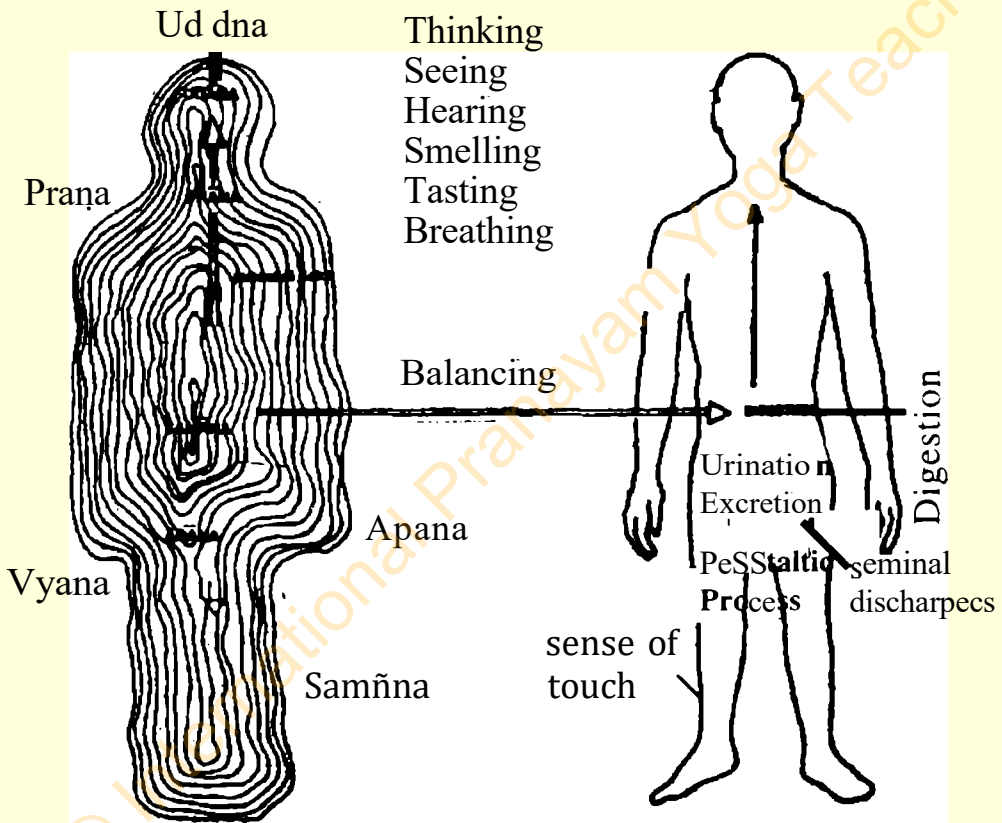
*Like on emperor allots and empowers a chief to look after different regions, the Prāṇa allots different regions and functions to its subordinates (Prāṇa, Apāna, Samāna, Udāna and Vyāna).*

These five functional manifestations of Variṣṭha Prāṇa are not structurally different from one another but operate in differently regions differently like the lighting, heating and magnetic effects of the same electrical energy in the physical universe. They are called M Rtw: Pañca Pranas the five main branches of Prana. Just as electricity is the unseen basis for light and heat, prāṇas are at the base of all physiological and psychological functions in our gross body called अन्नमया Annamaya Kos"ā.

### उपप्राणाः Upa-Prāṇaḥ;

Panca Pranas exist in the Prāṇic body and manifest themselves as many physiological functions in our physical body. Upa-Prāṇas are supporting subsidiaries of Prāṇas. The five up-pranas are given below

|         |             |  |
|---------|-------------|--|
| नाग     | Naga        | Relieves pressure on the abdomen by belching.          |
|         | Kiirma      | Controls eyelids and size of Iris.                     |
| ककल     | Krkala      | : Controls sneezing and cough reflexes.                |
| देवदत्त | Devadatta   | Controls yawning.                                      |
|         | Dhanañjaya: | Produces phlegm and nourishes; last to leave the body. |



*Physiology of Prāṇic and physical bodies*

### Prāṇāyāma

प्राणस्य आयामः प्राणायामः ॥

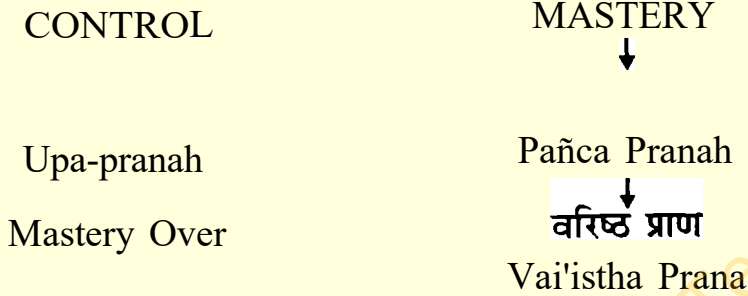
Prāṇasya āyamaḥ prāṇāyamaḥ.

*Mastery over Prāṇa is Prāṇāyāma.*

A systematic process by which the main control and mastery over Prāṇa is what is referred to as Prāṇāyāma. "The

mastery over the Varistha Praqa can be achieved by gaining mastery on any one or more all of the Pañca Praqas or 'Upa-Pranas.

### Concept of prñqñyiima



This mastery over V ari sth a Pran a would in vol ve a capacity to move along the spectrum of Prana by increasing or decreasing the frequency of Prana Spanda WWI IT. Freedom increases as mastery emerges - a capacity, a freedom to grossify to lower levels than the human level, or to move to great superhuman heights.

Included in this broad definition of Pr'anayama is a wide spectrum of Yoga techniques and practices which are given different names. They are summarised as under in the table :

### Priiqiiyiima

| Pañca Pranas | Upa-pranas        | Name of Yoga Practice          |
|--------------|-------------------|--------------------------------|
| प्राण Pr'ana | देवदत्त Devadatta | Conventional Pranayama         |
|              |                   | Dhanañjaya                     |
|              | किर्मा Kiirma     | Trataka                        |
| समान Samana  | कृकल Krkala       | Ki'iyas, Bandhas               |
|              | नाग Naga          |                                |
|              | अपान Apana        | Kriya Yoga, Bandhas            |
| व्यान Vyana  |                   | Savasana,<br>Yoganidra & Mudra |
| उदान Udan a  |                   | Kundalini Yoga                 |

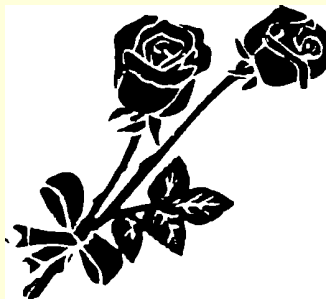
Control over Pranas including the Upa-Pranas Devadatta and Dhanañjaya comes under the usual realm of Prāṇayama in which we control breathing. The set of practices in which we gain mastery over Samāna comes under the heading Kriyas (including Sat Kriyas of Hatha Yoga) and Bandhas. Uddiyana Bandha controls the digestive forces. Gaining mastery over Apana and thereby on Varistha Prana is accomplished in Kriya Yoga by learning to pull up Apana and to offer it as oblation to Prana. Miila Bandha is one of the bandhas used for this purpose.

Kriya Yoga is used extensively by Yuktेशvar Giri tradition in Varanasi. This has been spread widely by Swami Yogananda who established the Self-Realisation Fellowship in Los Angeles, NJ S A, and Yogoda Satsaig in Ranchi, Jharkhanda.

Gaining mastery over the sense of touch, Vyāna and thereby of Variśtha Prāñija, is accomplished by the yoga techniques of deep relaxation, śavāsana and yoga nidra. Mudras also help in invoking the Vyāna and bringing control over its movements.

Udana and its control are the subject matter of what is popularly known as Kundalini Yoga.

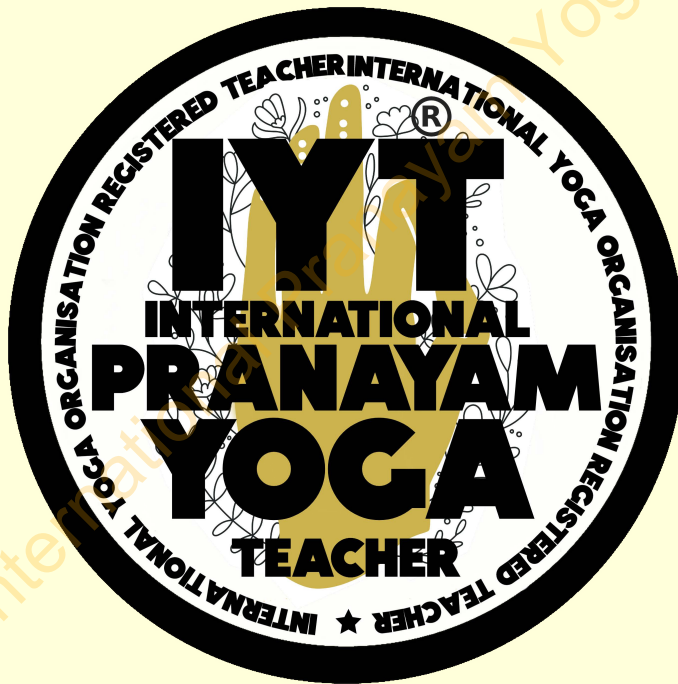
It is evident from the above description that Pranayama, in its most generalised understanding covers a wide spectrum of Yoga techniques. However, the conventional and popular definition of Pranāyama **is to gain mastery over Varistha Prāñija through Prāñija by controlling breath.** The main bulk of the rest of this book presents this aspect of Prāñayama while brief mention and description of other aspects of Pranayama is also included for a better comprehension.

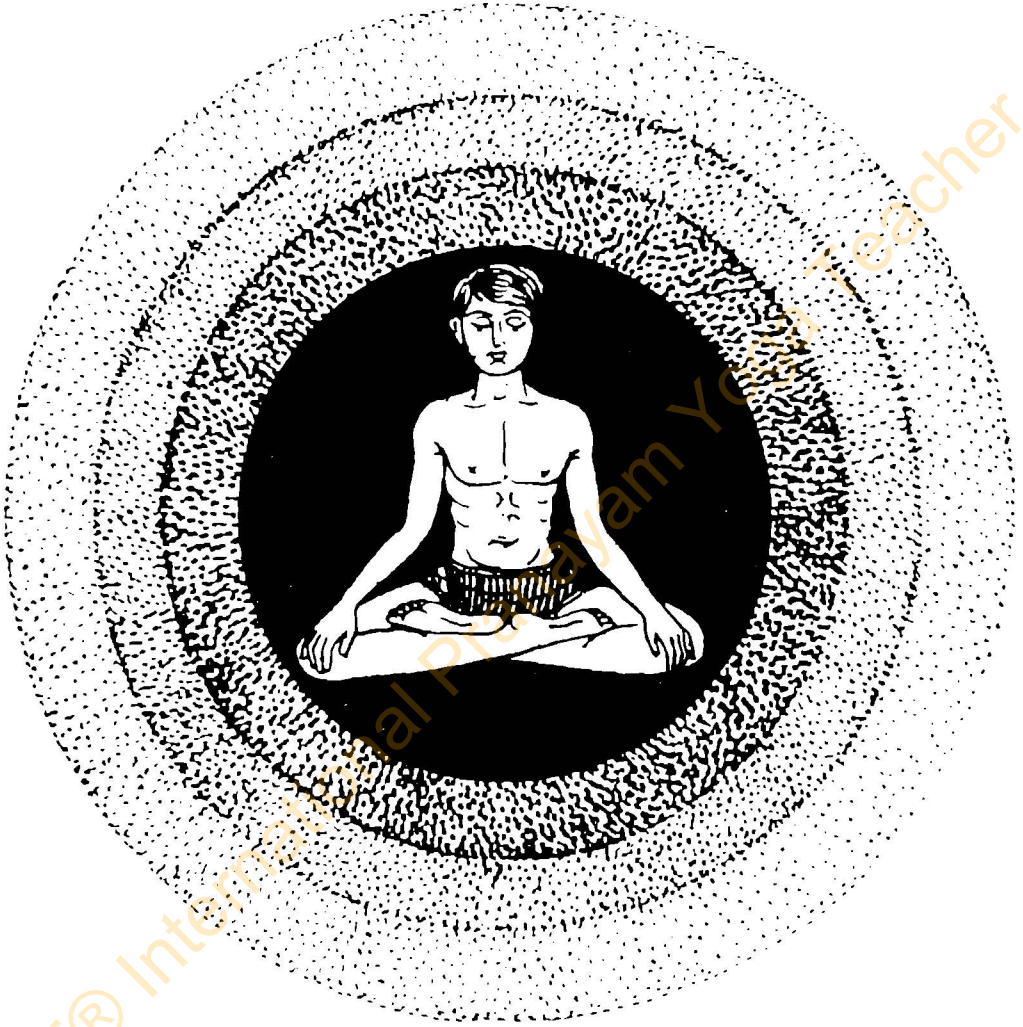


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BRIDGING THE BODY AND MIND





*Pañca Kośas - Fivefold existence of human beings*

# BRIDGING THE BODY AND MIND

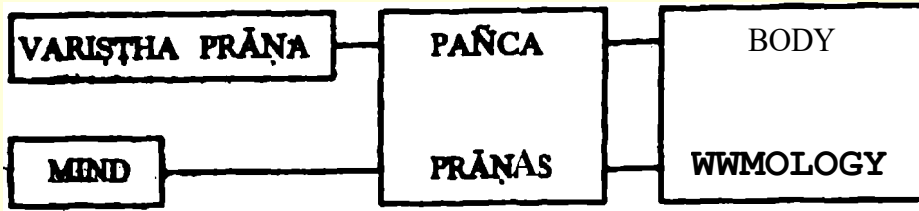
The body-mind problem has been the most intriguing one for centuries. How does the unseen subtle mind connect itself with the gross physical body?

## Link between the Subtle and the Gross

For a modern man in this hi-tech era where wireless transmission is a common place event, movement of a Sputnik or Robot or a Space craft on the moon through remote control is no more intriguing as it was a few decades ago.

The Upanisadic seers and Yoga masters had the knowledge as to how the mind works through Prana that controls and governs various functions in the physical body. Neuro-biologists have found certain areas in the brain, by the triggering of which (by electric signals through remote control) different emotions like laughing, anger, pace, etc. can be invoked. Stimulating hypothalamus can set up a series of reactions throughout the body to prepare the body for a 'fight or flight' reaction. Unseen magnetic forces can move physical objects. Similarly the mind changes the Pranic distribution and thereby affects various functions in the gross physical body. **Mind and Prana, structurally or basically, are not different from each other.** As seen earlier, Prana manifests itself as mind, intellect and ego as it gets subtler. Hence, there is an intimate connection between mind and Pañca Pranas. When mind is disturbed, the Prana also gets disturbed which shows up as breathing haphazardness or imbalances.

The imbalance in breathing disturbs the physiological functions and become pathological. Modern diseases as asthma, hypertension, irritable bowel syndrome (IBS), hyperacidity etc., are the results of such imbalances. Such diseases disturb the Pañca Pranas. mind and Prana in turn, and the feedbacks continue to aggravate the disease status. This vicious circle can be cut by either physical or mental intervention.



### *Body-Mind connections*

Pranayama is the science of systematic harnessing of the Pañca Prinas, mind and thus the Vari5tha Prñna. Thi5 science not only offers an answer to the intriguing body-mind problems, but also helps us to understand and gain mastery over these inner Praqic forces. As mentioned, Prânayñma in its most COlnprehensive definition covers a wide spectrum of Yoga techniques including Kundalini Yoga and Kriyñ Yoga. However, the conventional Pranñyñma harnesses the breath to gain control over Prana and thereby bring mastery over mind and Varistha Praria.



### *Com reef/ooa/ PrSySyâma*

Patañjali in his Siitra defines Prñnayama thus

तस्मिन्सति श्वासप्रश्वासयोर्गतिविच्छेदः प्राणायामः । (प.यो.सू. : २.४९)

Tasminsati Svasaprasvasayorgativicchedah Pranñyamab.

+>FJ fâMâ IS f/inr by whlch the trio recent of breath during inhalation and exhalation ls controlled.

Thus, to understand the traditional Prñnayñma, when we seek to gain mastery over breath, we should understand the structure and functioning of our breathing apparatus the respiratory system.

## **Bridging the Voluntary with the Involuntary**

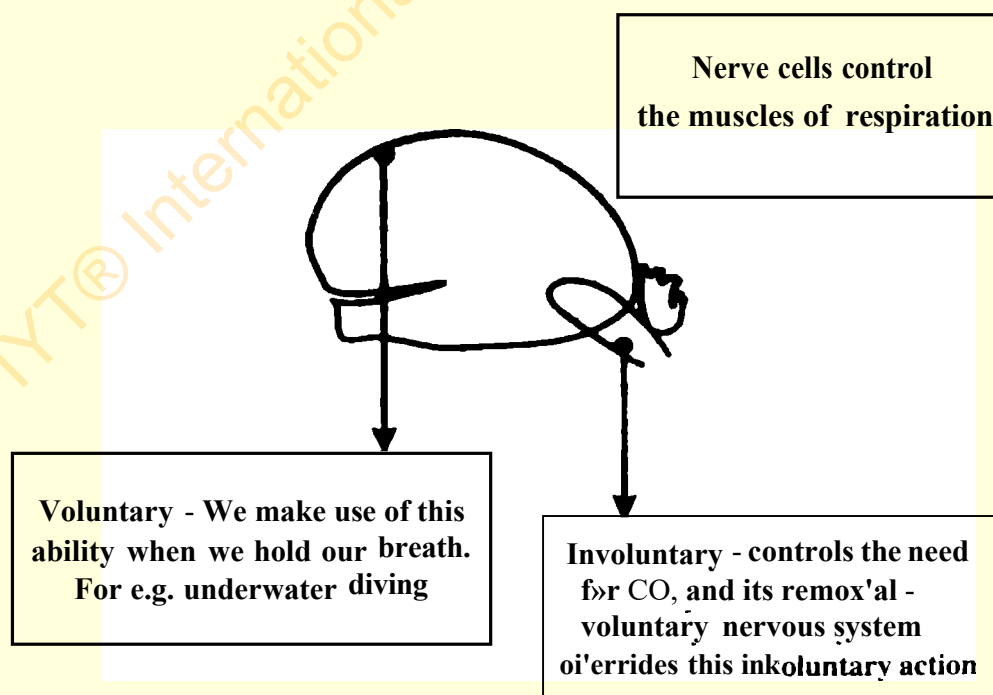
Our respiratory system has the special feature, that it is both 'oluntary and involuntary. This therefore, is the right

system by which we can move from the voluntary (visible, easy, conscious control of body physiology) to the involuntary system (unseen realms of bodily functions upon which we have very little control); from the known to the unknown. How does voluntary functions bring about changes in involuntary functions is well-understood today through brain researches.

The higher centres of brain are the instruments through which Varistha Prana, mind and prana work. As far as the physical body is concerned, the area of the brain centres in which highest creativity and intelligence are seen governs the lower brain, as well as the total body physiology. Normally these higher centres work through the mid-brain but have the control even to change the functions of the lower brain.

The Hypothalamus which is situated above the mid—brain is the master of the lower brain, governing and controlling all autonomic functions in the body. It works through two of its subordinates : the Autonomic Nervous System and the Endocrine System to change the entire body physiology. As

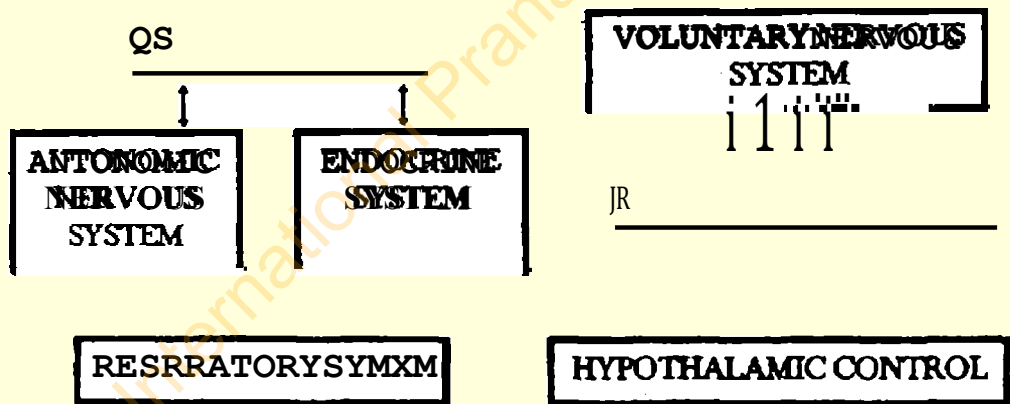
### NEURAL CONTROL OF RESPIRATION



our body functions go on automatically because of this master in the brain, the Hypothalamus. Normal inhalation and exhalation go on automatically, governed by this autonomic control. The lower brain houses this control.

If the involuntary functions go on like a clockwork set up through the master 'Hypothalamus', the higher centres of the brain govern the voluntary functions through the Voluntary Nervous System. The connection between this Voluntary Nervous System and 'Hypothalamus' is essentially through the higher centres of the brain and is very feeble in normal human beings. The respiratory system is innately connected by the nerves of this voluntary nervous system too. Hence, we can voluntarily change the breathing rate, pattern, rhythm, etc. by directing our will towards the same, essentially bringing the voluntary nervous system to override the 'Hypothalamic

*Autonomic and Voluntary control of the Respiratory System*



a. Autonomic function

b. Voluntary functions

Autonomic Control.

**From Voluntary to Involuntary**

By systematically regulating the speed and rhythm of breathing through voluntary nervous system, the autonomic functions will also change. The dysfunctions of the respiratory system can thus be corrected. Pranayama is a process by which this correction is brought about effectively. More important

is to understand the capacities of the higher centres of the brain and harness them to gain mastery over them : the Prāna, mind and Varistha Prana which is the aim of Pranayama. But how does the nervous system control the respiration? This can be understood by reviewing our knowledge of anatomy and physiology of the respiratory system.

## The Respiratory System

It is by means of breathing that every cell in the body receives its supply of oxygen and at the same time gets rid of the products of oxidation. Oxygen combined with the carbon and hydrogen of the tissues enables the metabolic process of each individual cell to proceed, with the result that work is executed and waste products in the form of carbon dioxide ( $\text{CO}_2$ ) and water ( $\text{H}_2\text{O}$ ) are eliminated. Respiration is a two-fold process whereby the interchange of gases takes place in the tissues called internal respiration and in the lungs known as external respiration. Air is drawn into the lungs during inspiration and expelled from the lungs during expiration. The air enters through the respiratory passages which are enumerated and their anatomical features briefly described here.

### Anatomical Features

#### 1. Nose

The nose is divided into two nostrils by a nasal septum. The division is normally unequal. Both the septum and the side walls of the nose are made up of cartilages (semi-bony) in their lower parts and by thin flat bones in their upper parts. Three strips of bones project from the bony side wall of the nose called turbinate bones to form the nasal conchae.

The external opening of the nose (anterior nose) opens into the vestibule of the nose. The inner lining of the vestibule continues and it projects downwards. The nasal cavities are lined with highly vascularised mucous membrane (On the inner lining of the nasal cavity which continues with those of the pharynx and the paranasal sinuses. This lining consists of a single layer of cells containing small delicate hair-like projections (cilia). There are a large number

of mucus secreting cells scattered along the nasal mucosa that secrete a thin transparent fluid to keep the surface **moist** and sticky.

The filaments of the olfactory nerves arise from small receptors scattered in the mucous membrane of the nasal cavity in its upper part. These nerve ends are the points that pick up the sense of smell. Apart from these special sensory nerve endings, there are touch—pain sensitive nerve endings distributed in the nasal lining that help the protective reflex of sneezing.

## Functioning of Nose

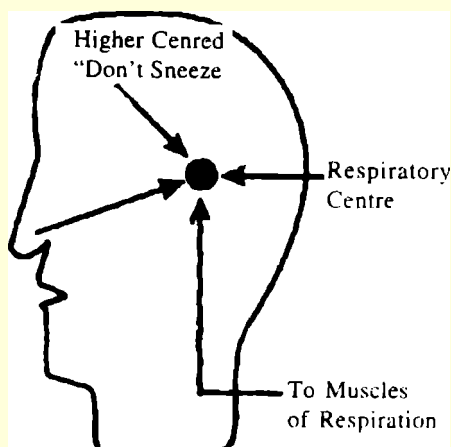
The nose acts like a room air conditioner with four major functions of cleansing, temperature control and humidity control. The extra is smell.

1. **Filtering the inhaled air** : The downward projecting hairs, the crevices of the conchae and the sticky mucus on the wide mucous membrane surface render the air free of big and small pollutants.
2. **Warming up of the air** : Air as it passes through the irregular nasal passage (enough time is provided for temperature control due to length of the passage) gets warmed up to body temperature by exchange of heat across the wide mucosal surface.
3. **Humidifying** : The evaporation of the moisture from the extensive surface of the nasal mucosa humidifies the inhaled air.
4. **Sense of smell** : This is perceived by the end organs in the nasal lining and the electrical activity is carried on through the olfactory nerve.

## Sneezing Reflex

This is a protective reflex to expel irritating substances in the air reaching the lungs.

The reflex arc consists of an end organ that receives the message. The afferent nerve carries the information to the



centre. The efferent path carries the information from the centre to the effector organ which carries out the effect. Here, the end organ is the touch sensitive nerve endings (sense organ) distributed in the nasal lining that sends all array of electrical impulses along the sensory nerve (the afferent). Whenever, the inhaled air contains strong irritants, the information is carried to the sneezing centre, a group of nerve cells in the brain stem. From here the message is sent along the motor nerves (the efferent) to all the chest muscles (effector organ) to contract forcibly, to cause a big inhalation followed by forcible co-ordinated contraction of all respiratory muscles to blast out the irritants from the nose and mouth by a burst of exhalation.

Thus, we find that sneezing is an important and necessary protective reflex. Sneezing becomes a problem in persons with hypersensitivity of the nasal lining triggering off the loop even for small non-dangerous irritants.

## 2. Pharynx

This is a common muscular tube that lies behind the nose and the mouth. The pharynx is guarded by tonsils at the sides, and adenoids at the top. Tonsils and adenoids are collections of white blood cells (lymphatic tissue) which act as army guards, defend by fighting away any dangerous germs which

inay contaminate the inhaled air. These white blood cells, in tact. surround the bacteria to digest them away and die themselves in the process, to be replenished soon. The muscles of the pharynx are chiefly useful in swallowing. The pharynx opens into the larynx (the voice box) in front and the oesophagus (the food tube) behind.

### 3. Larynx

Larynx is composed of pieces of cartilages to maintain its shape and the potency. Attached on top is a small piece of cartilage called epiglottis which closes the larynx like a lid during swallowing so that the food glides over it into the food canal (oesophagus) and not into the wind pipe (trachea).

The vocal chords are thin flaps projecting from the side walls of the larynx. The movement of these flaps are controlled by highly efficient groups of delicate laryngeal muscles. The vibration of these chords due to the air passing through the glottis, causes voice production.

### 4. Trachea

The trachea (wind pipe) about 10 cm long extends from the larynx to divide into right and left bronchi. There are incomplete rings of cartilages in the wall to maintain the potency under varying intra-thoracic pressure conditions occurring during breathing. The trachea divides into right and left bronchi which enter the corresponding lungs.

### 5. Bronchi

The right and left bronchi are formed by the bifurcation of the trachea. The right bronchus is shorter and divides into 3 branches to enter three lobes of the right lung and the left is longer and divides into 2 branches to enter two lobes of the left lung. These divide and redivide further into smaller bronchi and finally as bronchioles that enter the air sacs called alveoli.

The larger bronchi have incomplete rings of cartilage in their walls. These rings disappear in the smaller bronchi. The inner lining of the bronchus (mucous membrane) has ciliated (hairy) surface layer of cells, the movement of the cilia being upwards to remove the finer pollutants that might have escaped the nose. The inner lining contains mucous secreting

cells that secrete thiR ITIUCUs to provide a lubrlcating layer of moisture, and helps to humidify the air. The most important of the bronchus is the thin circular layer of Smopl|i inuscle that runs all the way along the bronchial tree. The contraction of this' thin circular bronchial muscle leads to its narrowing and relaxation to dililtlon of the air passages The calibre of the bronchus varies uith sevei'al factors and is ctnnirrolled by a highly complex neuro-chemical mechanism.

## 6. Lungs

The lungs, two in number, are the principal organs of respiration. They fill the chest cavity, one on each side separated in the mi ddle by the heart, its blood vessels and other structures. The lungs are cone-shaped with the apex above and the base resting on the floor of the chest cavity on the diaphragm. They are divided into lobes by fissures; the right has 3 and left has 2 lobes.

## 7. Alveoli or Air Sacn

Alveolus is lined by a simp•le layer of flat cells. It is here that the blood comes into almost direct contact with the air, being separated onl y by ex cee di ng I y thin per me able membrane consisting of two layers of f'lal cells. Ox ygen diffuses from the inhaled air into the air sac to the blood moving very slowly in the capillaries, and carbon dioxide moves from the blood to the air sac due to the differences in partial pressure of the two gases. Carbon dioxide moves more repidly than oxygen. Pulmonary artery and veins carry de-oxygenated and oxygenated blood from and to the heart respectively. The compositions of inhaled and exhaled air are given below :

### **Bronchial arteries supply nourishment to' the lungs**

|                | Inhaled Air | Exhaled Air |
|----------------|-------------|-------------|
| Nitrogen       | 797c        | 79Uc        |
| Oxygen         | ZOV.        | itv.        |
| Carbon dioxide | 0.04%       | 4.04%       |
| Miscellaneous  | 0.96?i      | (I.96Ur     |

## 8. Pleura

Each lung is surrounded by a double layer of membrane called the Pleura. The inner layer of pleura closely surrounds the lung and the outer layer covers the interior of the chest wall. Between the pleura, there is a layer of lubricating fluid to prevent friction.

### Physiological Aspects

#### (Mechanics of Breathing)

Respiration involves two processes. The inspiration (Piraka) which is active and expiration (Recaka) which under normal conditions is a passive phenomenon.

The inspiration takes place by the expansion of the thoracic cage and the lungs passively expand to fill up this increased space while the air is drawn through the air passages. Three sets of muscles are involved in the inspiration:

1. **Diaphragm** : This is dome-shaped sheet of muscle in the floor of the chest. Contraction of the diaphragm enlarges the chest cavity vertically downwards.
2. **Intercostal muscles** : are two layers of oblique strips of muscles in between the ribs. Contraction of these muscles cause elevation of the ribs to expand the chest forward and in the outward direction.
3. **Muscles of the neck** : These are muscles attached to the clavicle below and the jaw bone above. Contraction of these muscles along with shoulder girdle muscles helps to pull up the sternum and clavicle to expand the chest in the upward direction. These muscles are used only in deep forced breathing.

Abdominal muscles also assist during forced respiration.

Expiration takes place when the chest wall falls back during relaxation of these muscles as the Intra-thoracic volume decreases and the air is forced out of the lungs through the air passages.

## Control of Breathing

Normal rate of respiration is slightly higher in women than in men. Normal rates per minute are given below

|                      |           |
|----------------------|-----------|
| i) In newborn babies | 40/min    |
| ii) One year old     | 30/min    |
| iii) 2-5 years old   | 24/min    |
| iv) In adults        | 10-20/min |

The rate and depth of respiration varies with the oxygen demands of the body. This increases with exercise and emotions and decreases during rest.

The respiration is regulated and controlled by two principal factors :

**a. Nervous Control:** The respiratory centre is a group of nerve cells situated in the medulla oblongata (lower part of the brain stem). This maintains the basic reflex rhythm of respiration through nerves that pass up and down the spinal cord to the muscles of respiration.

**b. Chemical Control :** The centre can be influenced by certain chemical changes in the blood. Excess carbon dioxide (excess acidity) and reduced oxygen in the blood stimulates this centre to increase the rate and depth of breathing and vice versa.

The rhythmic discharges of this lower centre for respiration in the medulla is under the control of influences from higher centres. One such higher control is exerted by the Hypothalamus, the seat of autonomic nervous system. Nervous connections exist between these two centres. Excitatory impulses with any emotional surges pass down from the Hypothalamus to increase the rate and depth of breathing.

A second set of nerve connections exist between the frontal cortex and medullary centre because through which the respiration can be easily altered voluntarily. This is the highest level of nerve control.

Thus, we find that there is a hierarchy in the nervous control systems working in harmony without disturbing the basic involuntary rhythm at its base. The higher controls are to help us alter the rate and depth of breathing to meet the oxygen demand of the body.

Due to wrong breathing habits, our breathing becomes disturbed and hindered. This results in reducing the free flow of air through the respiratory tract and even affects the respiratory centres controlling breathing. Hence, the first step in Yoga to gain mastery is through cleansing processes called Kriyas.

## Kriyas for Purification

The performance of Kriyas (the purificatory process) is the first step toward mastery.

There are many kriyas for purifying different systems in our body. Kriyas are cleansing practices. In that sense, we all practise Kriyas—bathing, washing the face, brushing the teeth, all are Kriyas. But Yogic Kriyas refer to special Yoga techniques meant to cleanse the inner organs, developed by the Yogis. Among several Kriyas available in the Yogic lore, six major Kriyas called Sat Kriyas are comprehensive. They are as given

### Sat Kriyas - a glimpse

1. Tr̥ṅtaka for eyesight.
2. Neti for upper nasal tract (from throat to nostrils).
3. Kapalabhati for lower respiratory tract (from nostrils to lungs).
4. Dhauti for Gastric Intestine (GIT) upto stomach.
5. Nauli for Abdominal muscles and viscera. (Agnis̥ra is the preparatory phase for Nauli)
6. Vasti for lower Gastric Intestine (GIT) especially rectum. Sankhaprakshalana is for the entire GIT.

### The objectives of Kriyfia are to -

1. Cleanse the inner tracts, namely, the optical path, respiratory tract and Gastric Intestinal Tract (GIT) and refresh the innei' paths. Tadiness is removed thereby.
2. Develop an inner awareness.
3. Desensitize the possible hypersensitive reactions in the pathways (as in nasal allergy), and
4. Build the stamina and forbearance capacity.

### The principles of Kriyfia are to -

1. Stimulate the system either by an external medium or by volitional control. and
2. Relax deeply after the Kriyas and even during the **Kriya** practice itself.

While different methods of Kapalabhati are developed in Yoga, we have chosen alternate nostrils Kapalabhñti as the first practice to purify the respiratory system (mainly the lower tract).

### Purification : Kap<ilabhfiti

Kapalam bhati iti Kapalabhati.

Kapalabhati is that which shines the Kapala (brain).

*The brain cells are stimulated by this Kriya.*

In Hathayoga Pradipikâ this particular technique of cleansing and purification is defined as

कपालभातिर्विख्याता कफदोषविशोषणी । (ह.यो.प्र.२.३५)

Bhastrâ allo d.1 I l'asya recapiirati sasambhramau.

Kapalabhâtir ikhyLili Kapl3ado sa i\osani. (HYP. \*..?JQ

*Perform exhalation and inhalation rapidly like the bellows and it destroys 'all mucus disorders.*

In normal breathing, inhalation is active and exhalation is passive. This practice reverses that process so that exhalation becomes active and inhalation passive.

We now describe the alternate nostril Kapalabhati.

## Technique

Kapalabhāti consists of a series of fast successive **bursts** of exhalations followed by automatic passive inhalations.

### Kapalabhati

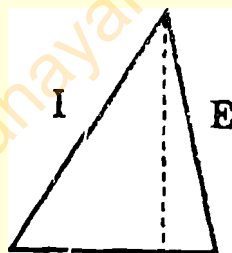
Normal Breath



Approximately 4.0 sec  
15 per minute

|  |
|--|
| <p>I = Inhalation<br/>E = Exhalation</p> |
|--|

Fiapilabhiiti



Approximately 0.4 sec & 0.1 sec

Very rapid - 120 per minute

Exhalation is forceful

Inhalation is involuntary

## Position

Sit in Padmasana or Vajrasana with spine erect, face relaxed.

Use Nasikā mudrā by folding the fore and middle fingers of the right hand. Keep the thumb, the ring finger and the little finger open.

Press the right nostril slightly by the right thumb and just the ring and the little fingers to block the left nostril.

Apply neither too much pressure nor twist your nostrils during the practice.



Let the elbows be on the upper abdomen. Do not fold them up. That will cause unnecessary strain to the arm.

Keep the face relaxed and smiling, eyes closed; this helps in concentrating on the movement of abdominal muscles and also to develop inner awareness to feel the changes that occur in the whole body due to Kapalabhati.

*Note : Stomach should be empty or very light.*

### Procedure

- Breathe in fully through the left nostril allowing the abdominal muscles to bulge out.
- Exhale with a burst as fast as possible by sucking the abdominal muscles inwards and the air rushing out of the right nostril.



### *Nāsikā Mudrā*

- Do not contract the face nor twist the nostril. Maintain a smile on the face.
- Gently press the left nostril and open the right nostril by releasing the pressure of the thumb of the right hand.
- Allow the inhalation to take place, utilizing the abdominal muscles. Complete the inhalation.
- Exhale with a burst, pushing out from the left nostril. abdominal muscles pulled inwards fully. Complete the exhalation.
- This completes one cycle of alternate nostrils Kapalabhati.
- Repeat the cycle 60 times.

### Speed

- Initially, concentrate on full inhalations and exhalations. Also on the bursts of exhalations, activation by the abdominal muscles. The speed could be slow and as low as 10 to 15 cycles per minute.

- As you progress, you will be able to increase the speed gradually to 120 strokes per minute (or 6.1 cycles in one minute).
- The time taken for exhalation will decrease as you continued.

The following precautions are necessarily to be adhered to in the performance of this Kriya to avoid possible side effects.

### Precautions

1. Do not bend the spine forward, backward or sideward while performing Kapâlabhâti. Such a bending may cause a catch or muscle spains in the neck or back or may even lead to a slip disc.
2. Contortions of the face during the practice can lead to muscle catch in the face.
3. Do not perform Kapâlabhâti with your belly full or even half-full. Digestive disorders may crop up if this precaution is not followed.

### Contra Indications

Persons with (High Blood Pressure), Ischaemic Heart Disease, Epilepsy, Disc Spondylosis, etc. should avoid this practice especially in the beginning.

Women during menstrual periods and pregnancy should not do this practice.

### Benefits

#### 1. The Physiological Effects

Kapâlabhâti is a fine Kriya which stimulates, all-round activity throughout the body. We therefore see the effect on different systems.

#### Muscular System

Mainly, the abdominal muscles are vigorously exercised to bring about flexibility and massaging of the abdominal

## Respiratory System

Due to the rate of breathing (120 breaths per minute compared to the normal breathing rate of about 15 per minute) there are two effects

- a. Washings away of carbon dioxide from the lungs, and
- b. Increased oxygen concentration in the lungs.

The stale air at the end of exhalation is not emptied out during normal breathing. The residual volume of the lungs is about 5% to 10Vo. Kap'alabhati with its rapid succession of bursts of exhalation **gets rid of this residual air, helping in the total cleansing of the lungs.**

## Circulatory System

Increased heart rate pumps the blood throughout the system. Blood is saturated with higher concentration of oxygen and stimulates all the cells to greater activity level. The lethargy of the cells is eliminated due to sedentary habits.

## Glandular System

Both exocrine and endocrine glands get stimulated. Their functioning gets normalised in the process.

## Digestive System

There is a marked improvement in the digestive process as the abdominal muscles are directly involved.

## Nervous System and Brain

The sympathetic nervous system is stimulated during the process. By this practice, Sympathetic-Parasympathetic balance is well-kept up.

The brain cells are involved continuously during the performance of Kapalabhati. Increased circulation of blood with higher oxygen concentration level cleanses and revitalises the functions of the brain cells. Memory cells and many other cells in the brain are brought into action. As per brain research

finding, best of the geniuses Einstein and Newton used only 5% of the capacity of their brains.

## 2. Therapeutic Benefits

Patients with diabetes, obesity, respiratory disorders, digestive problems (constipation, gastritis, hyperacidity, etc.) find Kapalabhati extremely beneficial.

## 3. Overall Effects

a. Cleansing, activating and revitalising of different systems.

b. Moving from Tamas to Rajas.

## Other Forms of Kapālabhātī

Keeping the basic structure of a series of bursts of exhalation followed by automatic inhalation at the rate of 120 strokes per minute different types of Kapālabhātī can be identified :

### 1. Kapālabhātī

In this, both nostrils are used simultaneously for bursts of exhalation and effortless, automatic inhalation. This is fundamental and all other forms are permutations and combinations. The hand is not used.

**Benefits :** Cleanses both nostrils together.

### 2. Single Nostril Kapālabhātī

#### a. Candriinuloma Viloma Kapālabhātī

- Close the right nostril with the thumb of the right hand in Nasikā Mudra.
- Inhale through the left.
- Exhale vigorously through the left.
- Automatic passive inhalation. Constant bursting and

passively inhaling only through the left nostril at a speed of 120 strokes/min.

**Benefits** : Cools the system and stimulates anabolic process in the body.

### b. Saryfinuloma-Viloma Kapfilabhñti

- Close the left nostril by the ring and the small fingers of the right hand in Nasika Mudra,
- Inhale through the right.
- Automatic passive inhalation.
- Repeat only through right nostril. Gradually increase the speed to 120 strokes/min.

**Benefits** : Increases the heat in the system; promotes catabolic process.

## 3. Sñrya and Candra Bhedana Kapñlabhñti

### a. Candra Bhedana Kapñlabhñti

- Use Nāsika Mudra and close right nostril.
- Inhale fully through left nostril.
- Close the left and open the right nostril.
- Burst out through the right.
- Automatic inhalation through left by closing right and opening the left.
- Repeat speed upto 120 stroke/min. Clockwise circulation of the breath.

### b. Sñrya Bhedana Kapalabhñti

The whole process of Candra Bhedana Kapalabhñti is reversed anti-clockwise circulation of breath.

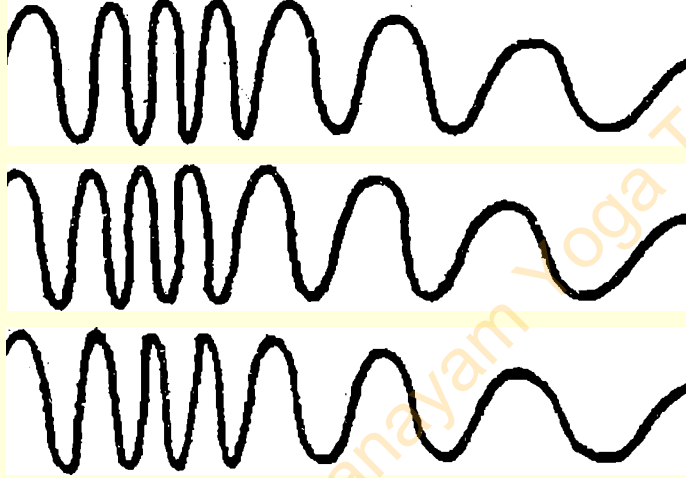
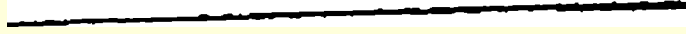
**Benefits** : Candra and Sñrya Nadis in Pr'anamaya Kosha are activated by these Kriyas apart from cleansing the nostrils effectively.

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# BALANCING THE BREATH





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*Speed up, Normalizing and  
Slowing down of breath*

# BALANCING THE BREATH

The imbalances of Prana show up as excess speed, haphazardness, unrhythmicity and shallowness in breathing. These wrong breathing habits may further manifest as jerks and bursts of breath and imbalanced breathing between the two nostrils. The first step is to cleanse the respiratory tract and lungs by Yogic Kriyas in general and Nett and Kapalabhati in particular, described in the previous chapter. The second step is to normalise breathing by decreasing the manifests of imbalances and correcting the wrong breathing habits. The techniques employed come under the head, 'Sectional breathing'. This is a preparatory breathing practice and increases the vital capacity of the lungs. It has three sections :

- a. Abdominal or Diaphragmatic Breathing  
or (Adhama Svñsa) 3J8\*f PdHf



*Abdominal Breathing*

Sit *eYe ci* In Vajr\*Sdna. E x hale and inhale completely, slt wly and continuously. This is called Piiraka. The abdomen is niude to bul ge ou i co ntin uous ly with the air entering, especially, into the low ei' sections of the lungs. Before exhaling stop the breath (Aniaryakun bhaka) for a few seconds without any force. While ex hal ing (Recaka) the abdomen is drawn in w ards conti n u ously and s to w 1 y . Before the breath is revei'sed, stop the breath (Bahyakumbhaka) effortlessly for a few seconds and then inhale. Repeat the breathing cycle. There should be no jerks ln the whole process. It should be smooth, continuous and relax1ng.

The diaphragm separating the thorax from the abdomen descends dur l ng inhalati on with the bul ging out of the abdomen. This increases the air-flow into the **lower sections** ol the lung s. The rhythmic movement in the diaphragm massages the organs of the abdomen gently, and helps them to function normally. It promotes general circulation also.

### **b. Thoracic (Chest) or Intercostal Breathing (Madhyama Svñsa) 48fR P4FR**



*Thoracic Breathing*

This sectional breathing is performed while sitting erect in Vajrasana; inhalation and exhalation are performed by expanding and contracting the chest only. Air flows through both the nostrils slowly and continuously. The abdomen is controlled to avoid bulging out. The middle lobes of lungs are opened up fully by this type of breathing.

### C. Clavicular or Upper lobar breathing (Adya Svafisa) TITZf §Uq



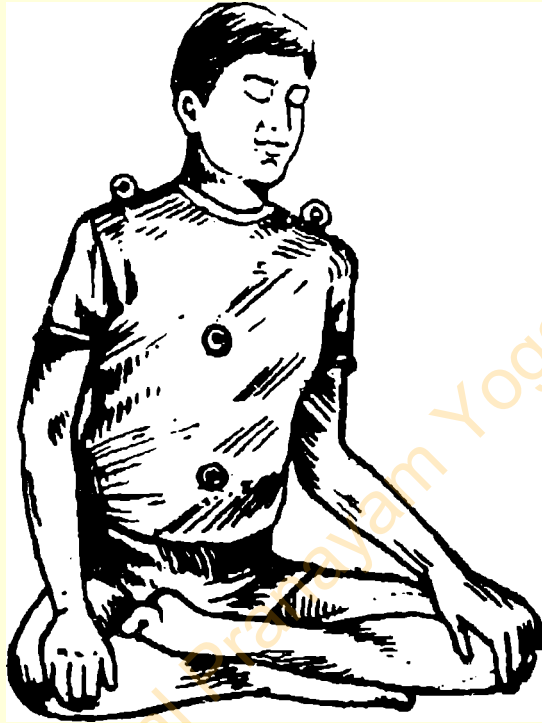
*Clavicular Breathing*

Sit erect in Vajrasana. Raise the collar bones while inhaling and move the shoulder backwards slightly. Keep the abdominal muscles contracted. The air is forced into the uppermost regions of the lungs thus ventilating the upper lobes while exhaling bring down the collar bones and shoulders forward to normalcy.

The sparingly used uppermost parts of the lungs will be properly aerated by this breathing.

d. Full Yogic Breathing @\*एवास Prima Sviisa In will be combined. Durinp• inhalation, the Adhama, ve

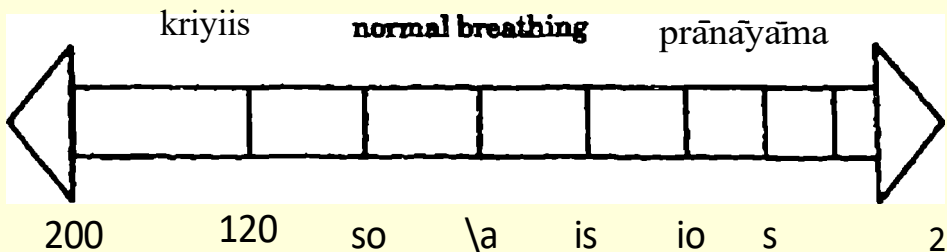
types full Yogic breathing technique, all the abo threeFFFFJ



Full logic Breathing

Madhyama and Adya occur sequentially and during exhalation the same sequence namely abdominal (Adhama), chest (Madhyama) and clavicular (Adya) breathings occur. The whole process should be relaxed and comfortable without any tension on the face.

Speed of Breathing Per Minute



Having learnt the process for cleansing and normalising the breath, we are all set to proceed for Pranayāma proper. What are the main features of the Pran'dyama Breathing? The first and the most important aspect is **slowing down of breath**. A glance as indicated clearly delineates the three regions of breathing - Ki'ya, sect i on al B reathin g and Prñay ama. Breathing rate (n u mber of breaths per minute) goes on reducing as we move from the high speed region of Kriyas towards normal breathing and Pranayama.

There has been a gross misconception among many practitioners and theoreticians that the Pranayama increases the oxygen level in blood and invigorates the respiratory system by higher concentration of oxygen. Many argue that the aspect of deep breathing in Pranayāma increases the oxygen content. They admit that as one progresses in Pranayama the oxygen content has to reduce.

It is well-known that removal of carbon dioxide (CO<sub>2</sub>) from the surroundings of a cell reduces Tamas or lethargy and makes it function vigorously. Kriyas accomplish this act of invigoration or activation of cells, as we have seen in the last chapter. But Pranayama has totally opposite effect as far as the respiratory physiology is concerned. The concentration of CO<sub>2</sub> increases in the blood in Pranayama. Then, is it not dangerous? Will not the cells start getting lethargic and dull? What are the advantages of slowing down of the breath?

Since we systematically and gradually train the system for slow breathing throuph Pranayama, there will be no danger. 'Not with preat will or force', Na Hath at Na B al at, is the injunction in Yoga which avoids all dangers, 'Slow and steady' - is the mandate.

The untrained cells certainly get dull with increased CO<sub>2</sub> content around them. However, when they are trained by consciously handling the respiratory impulses reaching the respiratory centre in the brain, the cells work effectively with lesser O<sub>2</sub> demands. This is what wC term as "increasing

efficiency of the cells, The dormant potentiality of the cells will start manifesting.

The Basal Metabolic Rate (BMR) is the rate at which we spend energy for carrying out basic body functions. The breathing rate is almost directly proportional to BMR. (It is well-known that good sleep will reduce the BMR by about 9% in about 5 hours. Corresponding reduction of Breathing Rate (BR) is also noticed). The amount of reduction in BMR is a measure of the rest of the systems. Slowing down the breath, therefore, provides very deep rest to the body-mind complex.

The science of 'Working in relaxation', and 'Attention without tension' is imminent in Pranayama. We learn to work without getting tensed up, with no overtones, hypersensitivity and over-reactions. With lesser energy expenditure, we accomplish the job or, as they say, 'more mileage to a litre of petrol'. How does this happen in automobiles? By reduction in friction losses, more effective combustion of the fuel, etc.

The Royal Enfield (Bullet) **motorcycle used** to give about 16-20 km/litre of petrol. With the hike in prices of petrol and with newer, lighter, trouble-free 2 wheelers flooding the market in 1985-86, the sales of 'Bullet' came down drastically. Even the rich who used to buy 'Bullet' for its majestic ride said 'why not Hero Honda' or 'Yamaha' which provided a royal finish. Soon the research wing of 'Royal Enfield' had a brain-storm session and improvised its carburetor, jets, etc. to increase the mileage to 30-35 kms/litre! That is efficiency. For the same input—increase the output!

And that is what Prāṇayama does to us. It enhances the efficiency. Thus, we conserve the energies.

An average adult takes about 3000 calories of food. Nearly 1500-2000 calories are spent for the basic functions, *i.e.* the adult is fast, sensitive and often over-reactive. By performing Pranayama, he needs only 500-1000 calories for the basic maintenance. He has a lot more energy to perform

his other actions. That is why normal person feels energised and enthusiastic throughout the day by performing Pranayama for about 30 mts in the mornings.

Thus, slowing of breath by systematic and gradual training of our respiratory system by various techniques of Pranayama possesses no danger. It does not turn us Tiimasic, **but by reducing the overtones of Rajas, makes us Siittvic (dynamic in the true sense) and more efficient.**

We will now proceed to learn an important technique Bhastrika which is particularly associated to the cleansing and purificatory process.

## Cleansing - 'Bhastriki' Prñ yama

The term Bhastrika means 'bellows'. We use chest as bellows to have forceful inhalations and exhalations.

### Technique

- Sit in Vajrasana or Padmasana with spine erect.
- Relax the whole body and face with a smile.
- Inhale and exhale by expanding and compressing the chest **vigorously** like bellows. The speed of breathing should reach 120 strokes per minute when learnt fully. In the beginning it could be slower. But concentrate on full inhalations and exhalations.
- Stop after ten strokes. (The Gheranda Samhitñ prescribes 20 strokes in the cleansing part instead of 10 strokes described here.)
- The breath stops automatically. Let it remain suspended as long as possible. Do not exert. Enjoy the cessation of breath and thereby let the breath stop longer and longer.
- Repeat 3 rounds.

In Gheranda Samhita, Bhastrika Pranayama is described

in a very simple and perceptible manner

भस्त्रैव लोहकाराणां यथाक्रमेण संप्रमेत्

चालयेद्वायुं यथाविधि

त्रिवारं साधयेदेनं भास्त्रिका कुम्भकं

न च रोगो न च क्लेशमारोग्यं च दिने दिने ॥ (घेरण्ड सं. ५. ७७)

Bhastriiiva It>hakfiriijam yathakramena sambhramet,  
Taihâ vâyum ca nfiabliyâniubhabhyam cfilayecchanaih.  
'»VillTI ViR i1(i viiram ca krt v'a kuryacca kumbhakam,  
Tadante cfilayedv'ayum purvoktam ca yathavidhi.  
Trivuram sâdhayedenani bhastrikfi kumbhakam sudhib,  
Na ca rogillTI Cil kleéam'arogyam ca dine dine. (Ghe.S.:5.75-77)

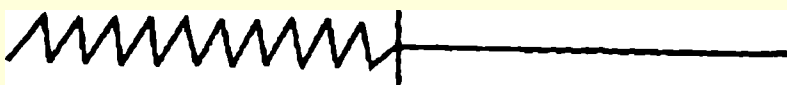
*As the bellows of the blacksmith constantly dilate and contract, similarly draw in the air by both the nostrils and then expel it out quickly, the air making a sound like bellows.*

*Ha ring lhii.v in.vpired mmcl expired quickl'f, fmerry times, perhoi'in kumhhnka, then expel it by the pre sion.> method. Let the misc <mc& perform thi.s I3hastrikñ (Bello in-like) Kumbhaka thrice: he will never suffer any disease and will be always healthy.*

As we cr>ulr1 sec, there are two distinct parts in Bhastrikii. The first Kriyu' and second Priinayama, the cleansing and the slowing down parts. Hence, Bhastrikii is called a bridge between Kriyas and Prânâyâma. Depending on the duration of stoppage

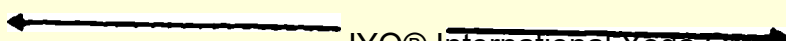
### Bhastrikii

10 Strokes



Kriyā Part

Prāṇāyāma Part



of breath (kumbhaka), Bhastrika acts as Kriya or normalising of breath practice or Pranayama.

- (i)  $x < 5$  secs, Kriya
- (ii)  $x = 35$  secs, Normal breathing
- (iii)  $x > 55$  secs, Prāṇayama

The time taken for the kriya part is 5 secs for 10 strokes. In 5 secs 10 and in one minute 120 strokes. Let us represent the duration of the Kumbhaka part as  $x$  secs. Now we consider three cases.

- A. If  $x = 5$  sec, then total duration for one round of Bhastrika (comprising of 10 breaths) will take  $(5 + 5) = 10$  secs. Hence we finish 6 rounds in 1 minute or 60 breaths in 1 minute. And this speed naturally comes in the region of Kriyas. Hence Bhastrika will act as a Kriyā.
- B. If  $x = 35$  secs, then 40 secs for 1 round and average over 2 minutes the speed of breath will be 15 per minutes falling in the region of normal breathing. Thus, Bhastrika is like sectional breathing.
- C. If  $x = 55$  secs, then Breathing rate is 10/mt and falls in the region of Pranayama.

Thus, the duration of Kumbhaka ( $x$  secs) in Bhastrika decides as to whether it is acting as a kriya or sectional breathing or Prāṇāyama. To make it a Prāṇāyama, the length of Kumbhaka should be not less than 35 secs.

Just as there are many misconceptions about Prāṇāyama, so too about Bhastrika. A simple understanding and analysis provided in this chapter should clear all such misconceptions. **It is clear that Bhastrika can be called a Prāṇāyama if the Kumbhaka duration is sufficiently long.** If the number of strokes is increased in each round, longer will be the duration of Kumbhaka needed. Alternately, if the number of strokes is reduced from 10 to say 5 or 3, the cleansing part or Bhastrika

will not be effective. Hence, an optimum of 10 has been chosen.

### **Bhastrikii and Kapiilabhiiti**

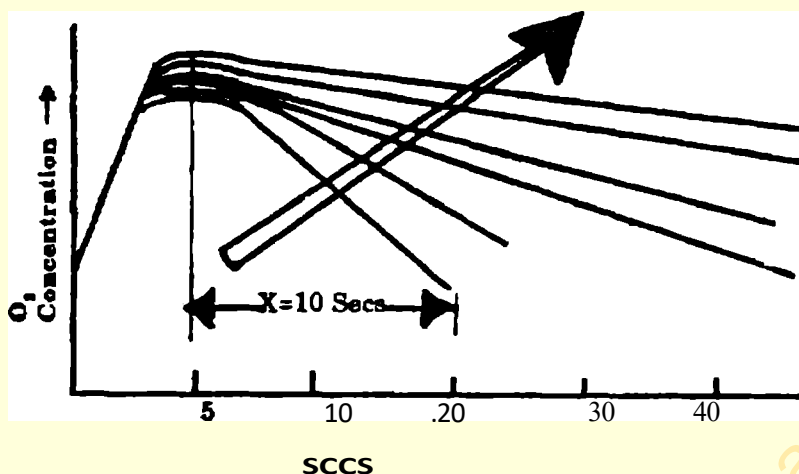
| <b>Features</b>                   | <b>Kapiilabhiiti</b>                                    | <b>Bhastrikii</b>  |
|-----------------------------------|---|--|
| <b>NAME</b>                       | <b>KRIYA</b>  | <b>PRANAYAMA</b>   |
| <b>CONTENTS</b><br>(for 1 minute) | Only cleansing part<br>(for 5 secs)                     | Pranayama part<br>(35 secs or more)  |
| <b>SPEED</b>                      | 120 strokes a minute                                    | Cleansing speed<br>120 a minute but<br>overall speed less<br>than 10 strokes a<br>minute |
| <b>CLEANSING ASPECTS</b>          | Bursts of exhalations followed by automatic inhalations | Both inhalation & exhalation are vigorous & active                                       |
| <b>ACTION</b>                     | Abdominal breathing resembling a pump                   | Thoracic breathing resembling bellows  |
| <b>EFFECT</b>                     | Purification  | Cleaning and Soothing  |

The main differences between Bhastrikñ and Kapalabhati can be seen in the following table:

### **Physiological Aspects**

The physiological aspects of the cleansing part are the same as described in Kapalabhati stimulating and shattering of Tamas as in general.

At the end of this cleansing part, there is an automatic cessation of breath due to CO<sub>2</sub> debt in the respiratory system where there is a gradual build up of CO<sub>2</sub> in the system and the breathing starts getting normal after a while. This duration of



***Build up of  $CO_2$  or reduction of  $O_2$  level in blood with time***

Kumbhaka elongates if we relax and enjoy this phase consciously. With each round, the elongation increases and the level of relaxation also increases while the rate at which  $CO_2$  builds up also decreases.

## Benefits

1. Great freshness and agility are experienced in Bhastrika. It is not only shattering of Tamas and stagnation but also reduction of overtone and hypersensitivities to increase the functional efficiency of the cells.
2. This is a fine practice to remedy some of the dangerous effects of Kumbhaka practice done wrongly.

## Precautions

Bhastrika should be practised with:

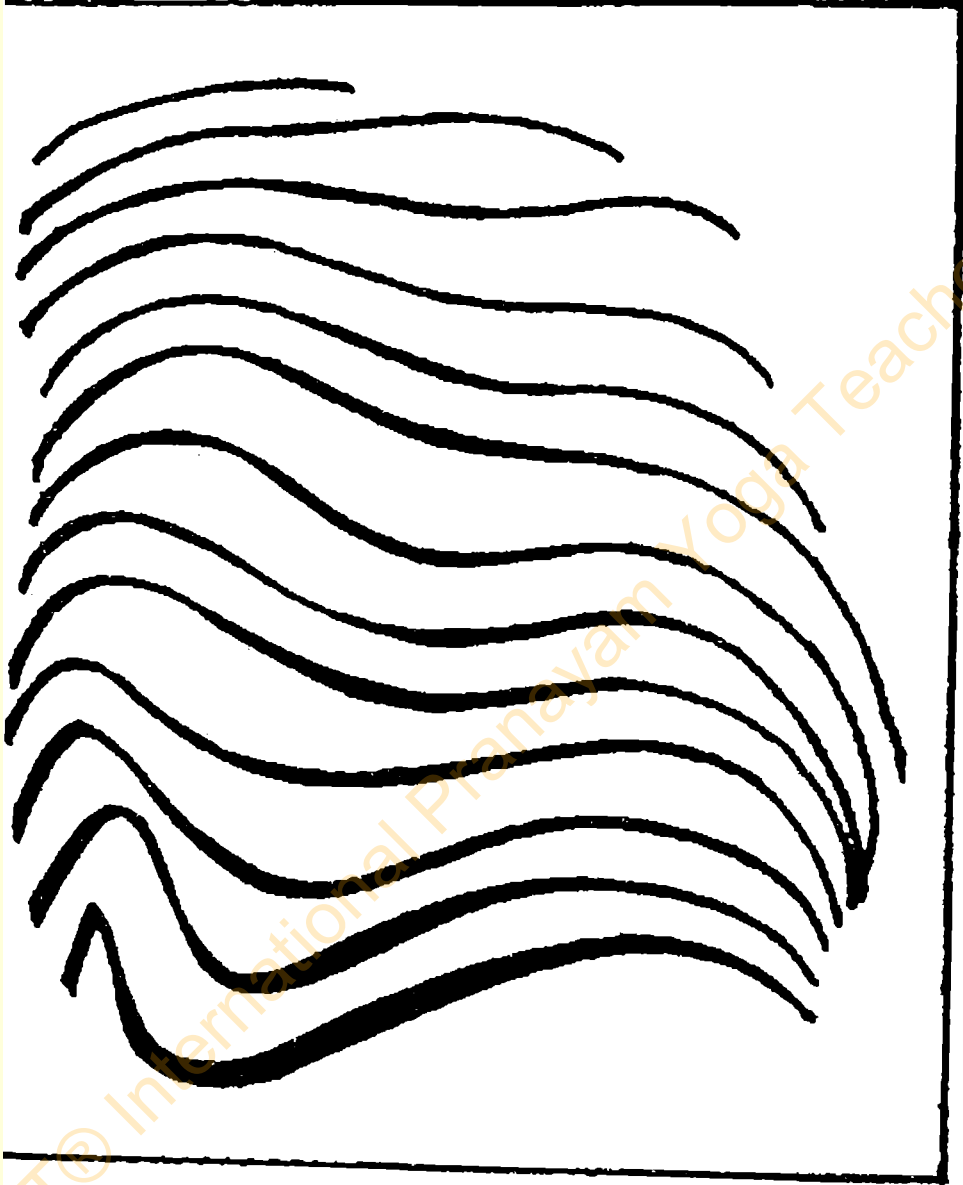
- a. Empty stomach
- b. Spine erect and body symmetrical, and by
- c. Normal healthy persons (hypertensives or patients of IHD should perform under expert guidance only).

Varieties of Bhastrika similar to different types of Kapalabhati can be found. Singienostri Bhastrika and alternate nostril Bhastrika are the main variations. Maintaining the features of Bhastrika, the readers may themselves work out these variations looking at these types in Kapalabhati.

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# AVOIDING DANGERS - THE SAFE PATH





*The Vāsiṣṭha School - The Safe Path*

# AVOIDING DANGERS - THE SAFE PATH

Slowing down of breath, as we have seen, is the first step in Pranayāma. Control of breathing from the new-cortex, overriding the involuntary respiratory control centre in the lower section of the brain is to shift from autonomic to conscious control of breathing. In the process, we build awareness. This is the second step in Pranayāma.

## Three components of Breathing

1. Inhalation or breathing in is called Pīraka.
2. Exhalation or breathing out is called Recaka.
3. Stoppage of breath is called Kumbhaka.

Three types of Kumbhaka can further be differentiated:

- a. Stoppage after inhalation is called Pīraka Kumbhaka or Antarya Kumbhaka.
- b. Stoppage after exhalation is called रेचकभक्त Recaka Kumbhaka or Bahirkumbhaka or Siinyaka (both of these are called Sahita Kumbhaka).
- c. Automatic effortless stoppage of breath at any stage of breathing is called Kevala Kumbhaka.

The first two types of Kumbhakas involve forceful holding of breath. **While the third just occurs.** Hatha Yoga texts use the former types of Kumbhakas as an integral part of all Pranayama Practices. It is for this reason that most authors and practitioners believe that forceful Kumbhaka is a mandatory part of all Pranayama techniques. However, Patañjali includes Pranayama techniques with or without kumbhaka by using the term *iccheda*.

Tasminsati svasaprasvāsayorgati-vicchedab Prānāyamaḥ

*Prānāyama is the cutting off of the course of breathing in and out.*

Conscious control to break the involuntary breathing cycle which is going on automatically is the key feature of Prānāyama, not only by holding the breath (Kumbhaka) but also by slowing down the inhalations and exhalations.

While Vyāsa Bhasya (commentary by Vyasa) describes Viccheda as complete stoppage of breath, other commentators—Vācaspati Miśra and Bhoja have sided with the second view that the Viccheda could just be the reduction in speed. Stoppage (Kumbhaka) occurs at its extreme ends.

Vasistha in his famous योगवासिष्ठ Yoga Vasistha leans on the second process of Prānāyama accomplished through slowing down of Pūraka and Recaka. Thus, we can clearly differentiate the two distinct schools of Prānāyama; the first in which forceful Kumbhaka is a mandatory part of all Prānāyama techniques which will be called as Hatha Yoga School and the second school in which forceful Kumbhaka is not at all used, but all emphasis is given to elongating the breathing process and promoting Kevala Kumbhaka called Vasistha School. However, the goal of both these schools in particular and all Prānāyamas, in general, is to achieve Kevala Kumbhaka for long durations.

Patañjali differentiates between with effort and effortless kumbhakas clearly in his Yoga Sūtras:

बाह्याभ्यन्तरस्ताम्भवृत्तिर्देशकालसंख्याभिः परिदृष्टो दीर्घसूक्ष्मः ।

(प.यो.सू : २.५०)

Bahyabhyantarastambhavrttirdes'akñlasaiikhyabhih  
paridrsto dir hasiiksmah. (PYS : 2.50)

*Recaka, Pūraka, and Kumbhaka become prolonged and*

*subtJ measured in lerzns of the reyion, f?zne and number o:F sounds with practice.*

As interpreted by Vyasa, the three types of Pranñyarña are : Recaka- Kumbhaka Pranay ama, Piiraka- Kumbhaka Praqayama and Stambha-Vrtti Pranayama.

But Vacaspati Mis"ra and Bhoja interpreted these as the three components of Pranñy ama - Piiraka, Recaka and Kumbhaka.

All the commentators, however, agree that the Stambha Vrtti mentioned here is forceful. Hence, Patañjali is talking about the first type of Kumbhaka with effort at the extreme ends of Piiraka and/or Recaka. In the next Siitra he talks about the fourth component of Pranayama the Kevala Kumbhaka achieved through a long practice and deep relaxation called effortless kumbhaka.

**बाह्याभ्यन्तरविषयाक्षेपी चतुर्थः । (प.यो.सू. २.५१)**

Bñhyabhyantaravisayñksepi caturthab. (PYS : 2.51)

*That which has no reference to the inhalation and exhalations is Me fourth.*

The **terms** Aksepi means 'with no reference to' or 'transcends'. All the commentators agree that this refers to the effortless M• Kevalakumbhaka which is the objective of all the Pranayamas.

Thus, the two schools basically differ in the inclusion and exclusion of effortful Kumbhaka. We will now describe and show how practitioners of both schools will reach the same goal by reference to **schematic sketches in figures.**

## HaJha Yoga School

- Sit in Vajrasana or Padmasana with spine erect.
- Inhale for a second. Fully breathe in (Piiraka).
- Hold the breath for 2 seconds (Piiraka Kumbhaka).
- Exhale for 4 seconds (Recaka).

Hold the breath for 8 seconds (Recaka Kumbhaka).

The ratio is 1:2:4:8, and this completes one round of Pranayama. Perform three to nine rounds of this Pranayama.

With practice, the duration of Kumbhaka should increase and the capacity for retention of breath enhances. The practitioner can use the same ratio (1:2:4:8) but can increase the duration - 2 secs of inhalation, 4 secs of retention, 8 secs of exhalation and 16 secs of retention. Alternately, he can keep the duration of Recaka and Puraka same, but increase the length of Kumbhaka : 1 sec piiraka, 4 secs Piiraka Kumbhaka, 4 secs of Recaka and 8 secs of Recaka Kumbhaka. With continuous practice, the length of Kumbhaka increases further to 1:8:4:16, 1:16;4:32 etc. As the length with effort Kumbhaka increases, the middle portion of the Kumbhaka becomes effortless and becomes Kevala kumbhaka. And that is how the practitioner attains longer and longer duration of Kevala Kumbhaka.

## Dangers in Hatha Yoga School

In this, performance of Kumbhaka without the proper use of the bandhas is beset with dangers. Hence, éare should be taken, to use 'Bandhas' correctly.

A **person** came to us with neurotic symptoms, lack of **concentration**, incoherence in speech and thinking. **He was** a brilliant student working for a doctoral dissertation. He had taken to Pra nñyama after reading a book. Fascinating were the initial results - increased power of concentration, enhanced memory, agility and freshness throughout the day, et.c. After about 2 to 3 weeks, he found that the **result** were on the declining trend. He increased the number of rounds of Kumbhaka. He applied his strong will and further increased the duration of Kumbhaka and ended up as a neurotic, when he reached us.

A detailed enquiry revealed that he never used Jalandhara Bandha to arrest the breath at the throat level. Instead, he used to have full pressure of breath all through the upper nasal trachea. BY holding the nose tightly he would control the breath. The

Upward thrust had naturally hit his upper parts leading him to the above condition. Hence, application of **Jālandhara Bandha** is a must in kumbhaka Prāṇāyāma. He regained normalcy in just 10 days of his stay at Praslianti Kutiram.

### **Jālandhara Bandha (the glottis-lock)**



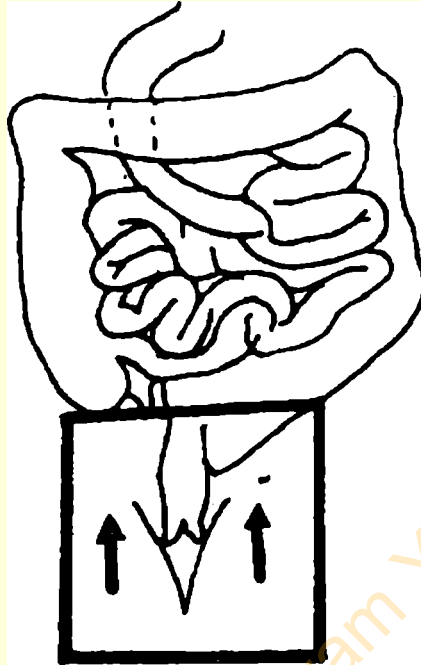
#### ***Jālandhara Bandha***

This is used for restraining the breath below the level of the glottis after inhalation in Antaryakumbhaka.

Contract the throat, press the chin firmly against the chest at the jugular notch after inhaling. The breath is stopped at the throat. With gradual practice the pressure of air on the glottis will be released and the whole system will be relaxed while the breath gets stopped near the throat.

*A bank officer started suffering from alternate bouts of diarrhoea and constipation. Drugs helped him the least. He recognised that it all started about a month after he started Prāṇāyāma, the Kumbhaka way. He missed the use of Mūla Bandha, though he was practising Jālandhara bandha correctly. His bowel problem was sorted out in about a week and he could, then, progress considerably in Prāṇāyāma and Dhyāna.*

## @xaxf Mala Bandha(theanus-lock)



### ***Mūla Bandha***

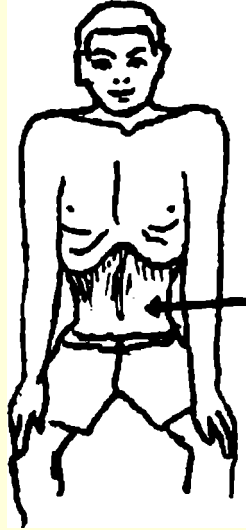
Press Yoni (perinium) with heel, contract and pull up the anus, thus, by drawing the Apana; Miila Bandha is caused.

*/ had observed a great Gogh" with buJged out abdomen almost dySFJ@UEJJJ^ h?zn. / sa w that he was fruyaJ in his food in fake, once a day onJ . 77e was not obese earJ?er. be taken developed gastritis and acidity too. be cared not for this body and look the suffering as a part of his Jibe untiJ deal.*

We had quite a few persons coming to us with symptoms of gastritis, stomach pain and hyperacidity after the practice of Kumbhaka Pranayāma for a short w'liilc.

We identified all these cases as those who had missed the use of third Bandha 'Ud<l .rna' in their Pranayama. The upper and the lower ends b i rig blocked through Jñlandhara and Miila Bandhas, the pressure would force the abdominal muscles bulge out and stimulate the acid secretion centres in the stomach excessiv ely. The remedy that worked was Uddiy ana Bandha.

## &\*f Uddiyana Bandha (the abdominal - lock)



### *Uḍḍiyāna Bandha*

Uddi in Samskrta means to “fly up”. Hence it is said that for the Yogi who practises this regularly, his Prana moves up through the subtle centres. The significance of Uddiyana is to restrain the breath and hence is called Bandha or lock.

Exhale completely through the mouth, expand the chest by mock inhalation moving the diaphragm down in the relaxed abdominal muscles so that they almost touch the back bone. This is practised at the end of Kumbhaka before the beginning of Recaka. Maintain it for some time and then inhale slowly.

Thus, the three Bandhas are **mandatory** while performing Kumbhaka Pranayama. Neglect of anyone of them or wrong application can lead to a variety of health hazards. A safe method for Kumbhaka is given below

### f7ERf HmR Tribandha Prfiiiiima (the tri-fold-lock)

- Sit erect in Vajrasana or Padmasana. Be stilling.
- Inhale fully for 2 secs. Appl; Mu Oil BitDtJhK.

Use Jalandhara Bandha and hold the breath at the throat, slightly pull in the abdomen as in Uddiyana.

- Continue the Kumbhaka for 4 secs.
- Release the Jalandhara Bandha and freely breathe out for eight secs.
- Again the Jalandhara and Uddiyana to continue the Kumbhaka for 6 secs.
- Release Jalandhara to inhale.

This is one round. Continue the prescribed number of rounds.

Forceful holding of breath is a part and parcel of this Kumbhaka Pranayama; but if the trick of relaxation in the Kumbhaka is used, faster progress can be achieved. In any case, the hazards of Pranayama can be reduced if we go slow and **work intelligently.**

## Vishuddhi School

As mentioned earlier, effortful kumbhaka is not used in this school. Instead, effortless retention is encouraged and promoted, forceful retention may create disorders. Therefore, to slow down the Prana, to calm down the mind, the gradual and systematic practice of yoga has always been advised in this school.

To slow down the speedy wavering mind to practise the slow, deep rhythmical breathing is very necessary. By practice one can cross all the obstacles of the ailments and miseries

.. Yoga Vasistha

5.78.40-41.

Abhyasena nirabadham..... Abhyasatdrdhatam yato....

*By practice, the restless (inconstant) mind rests. Patna becomes steady and tireless and receives supreme peace.*

मनः प्रशममायाति निर्वाणमवशिष्यते । (योग वा.५.७८.४६)

Abhyasena prana spandate pranayama ksayansagate,

Abhyasena parispande pr'ananam ksayamagate,  
Manab pras'amamayati nirv'anamavasisyate.

(Yo. Va.:3.75.46.)

The experience of Kevala Kumbhaka takes us to the peace everlasting. So S'asistha instructs Rama Abhyasavñnbhava , contemplate on practice.

Rsi Vasistha has accepted every system of yo<sub>tra</sub> for the purpose of calming down the mind only; be it meditation or the experimentation of different techniques or be it Pranayama itself. The retention of Prana in his view, is to attain the peaceful state of mind:

Yoginas'cittas\*ñntyartham kurvanti pranarodhanam,  
Pi'anay'amaistatha dhyana<sub>ih</sub> prayogairyuktikalpitaih.

## Vñaigntha School

Kevala Kumbhaka  
occurs without effort, after practice



Initial breathing

... After Prañnyama practice

g

Reduction in rate.  
increased depth



Further decreases in rate  
and increases in depth

4.

Gradually there is a  
pause between breaths

500 ml

4 sec

Further he says

सुभगं संविदः स्वास्थ्यं प्राणसंरोधनं

Cittopaśāntiphala<sub>dam</sub> paramam sāmyakāraṇam,  
Subhagam samvidah svāsthyam prāṇasamrodhanam viduḥ.

The natural and effortless retention and control of all the Pranas (Prana, Apana etc.,) is the way of Yogī Vasistha. This is not a forceful retention or control of Prānas in different parts of the body. **but it is an automatic and spontaneous retention through the effortless and conscious practices.** It is bountiful, benign, healthy and benefactor.

In Yoga V'asistha the great Yogī Kāka Bhiis'unda describes the process of Prāny'dma as tranquilising the Prana, slowing of breathing, bringing of rhythm and happiness to the mind.

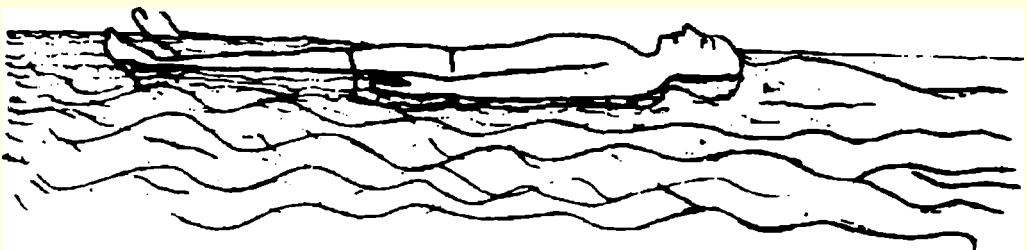
This school is totally safe, devoid of health hazards of the Hatha Yoga school. At the same time, we have found that the system is equally effective and the progress is steady. Hence in our Yoga Research Foundation and Arogyadhama, we follow this school, **as safety is our first concern** while popularising Yoga techniques as a socially relevant science on a mass scale. We are happy to note that after nearly 20 years of practice and teaching in India and abroad to the young as well as old, **we have had not a single hazard.**

In the rest of the book, we have described various techniques of Prānyāma performed by the Vasistha way. By adding forceful Kumbhikas and the ratios, all these Prānyāmas can be converted into Hatha Yoga school.

## प्लाविनी Plavini - Floating Prānyāma

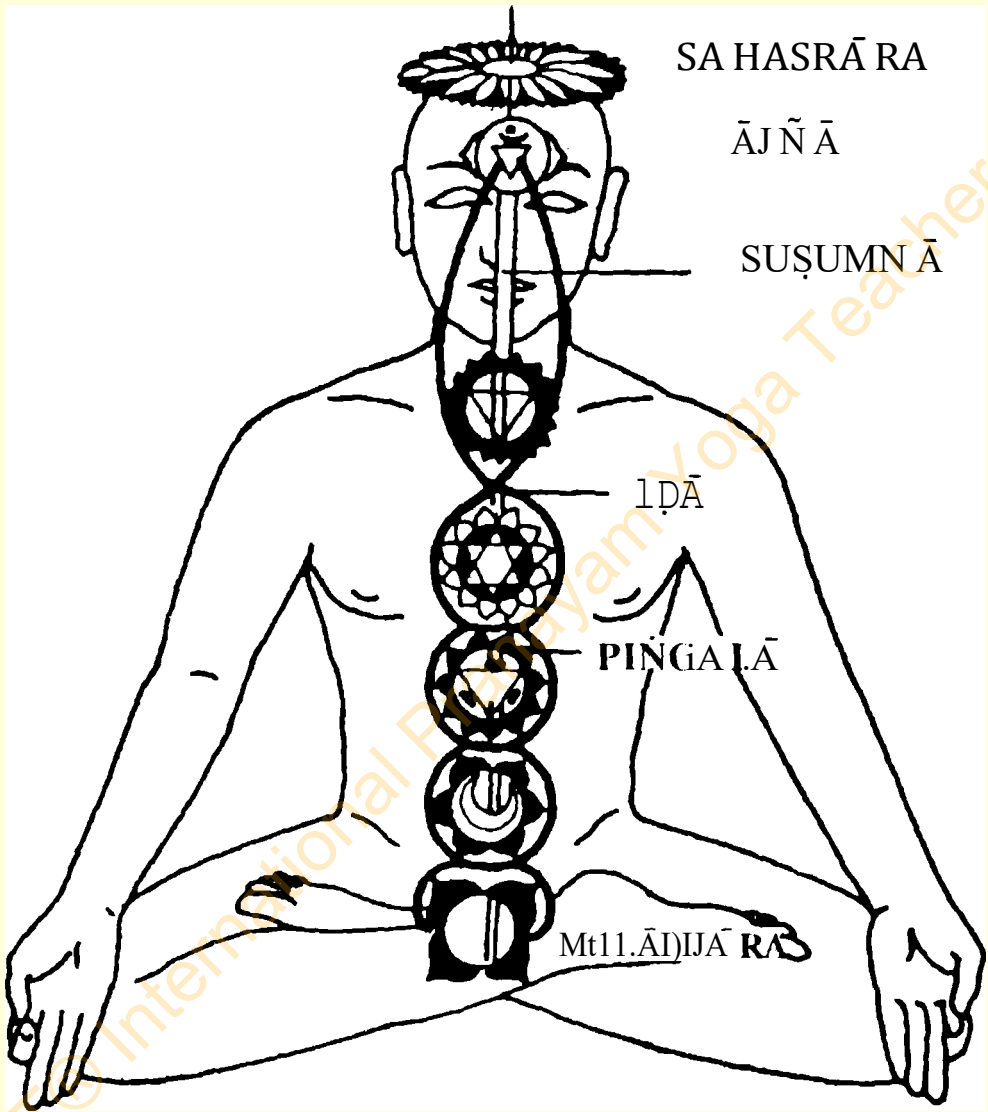
Sit in Padm'asana or Vajrasana with erect spine and keep the whole body relaxed. The Sthiti - the preparatory pose is common for all Prānyāmas described in this book.

By swallowing the air, the stomach is filled up to make the body lighter so that it can float on water with ease.



PRANAYAMAYA BODY:  
STRUCTURE AND BALANCE





*Kuṇḍalini Pathways*

# PRANJAMAYA BODY: STRUCTURE AND BALANCE

The two nostrils riddle is not yet resolved in respiratory physiology. Does breathing through the left nostril and/or the right nostril make a difference? Yes, recent electroencephalogram recordings on a group of people, who were made to breathe only through the left first and the right next showed significant differences. It appears that the left nostril breathing promoted the functioning of the right hemisphere of the brain and *vice versa*. However, more tests are needed to get at the conclusive results.

In Yoga, the importance of breathing through left or right has been recognised for millennia. The left nostril breathing is a manifestation of Prāna flowing through the Candra Nadi and the right nostril breathing is for flow of Prana through Siirya Nādi. What are these Nadis and what are their significances in Prānayama? We will study now.

## **The Anatomy of the physical Body and Priiqic Body**

Medical research has unraveled many of the hidden mysteries of this physical body. Starting with the cells as the fundamental smallest units of life, the tissues, organs, systems and the whole human body are understood with great accuracy. Our ancient seers had known the structure and functioning of the vital body called Pranamaya Kosa. Just as there are large number of blood vessels and nerves in the physical body, there are 72 lakh Nadis in our Pranamaya Kosha through which the Vyana flows. They are spread throughout the vital body. There are three principal Nadis called Ida, Piṅgalā and Sushumna. Positioned at the centre of the spinal canal is Sushumna. The Ida and Piṅgalā go up from the base spiralling around the straight and vertical Sushumna Nādi. The Ida is called Candra Nādi and Piṅgalā the Sūrya nādi while prāna flows through Ida and Piṅgalā incessantly manifesting as breath through left

and the right nostrils respectively, the central N'ad1, Su.sumna is not operating in almost all of us.

The Surya (sun) as the name indicates, is burning in character. It stimulates. The moon, Candra is cooling in nature, it soothes - relaxes.

## Catabolic and Anabolic Processes

It is well-known in modern physiology that in our human system large number of cells get formed continuously and an equal number of cells get destroyed. Medical researchers have found that in about 7 years almost all the cells in our body get replaced.

We are new persons every 7 years. Our entire life is governed by these processes of Catabolism (destruction) and Anabolism (creation). Let us designate the rate at which the cells get destroyed as C and rate at which the cells are constructed as A. We can divide our entire life into three stages

Stage 1 :  $A \gg C$  ('A' far more than 'C')

In childhood there are lot more cells being formed and, therefore, the growth is seen. This is represented below

### Anabolic and Catabolic rates governing the life cycle

Childhood  $A \gg C$

Adulthood  $A = C$

Old  $A \ll C$

As we reach adulthood, they set balanced Stage 2 :  $A = C$  ('A' approximately equals to 'C').

When we enter the old age, our life starts in Stage 3 :  $A \ll C$  ('A' far less than 'C'), the decay continues culminating in death.

A combination of A and C is the metabolic rate.

These processes (A and C) are governed by the flow of Prana through Ida (A) and Pingala (C) Nâdis respectively.

It is also well-known that sympathetic-parasympathetic balance called homeostasis is vital to promote positive well-being. Normally, Sympathetic Nervous System (SNS) is stimulating in character while Parasympathetic Nervous System (PSNS) brings the system to normalcy (is soothing in character). Here, it looks that Ida and Pingala play a role in bringing into action PSNS and SNS respectively.

There is a misunderstanding in many people that Ida and Pingala Nâdis are nothing but PSNS and SNS. Such people even conjecture that Chakras are not there at different levels of the spine. For them, Prana is nothing but oxygen, the breath!

The facts presented in the earlier chapter must convince the readers that our Yogis were very clear that Nadis exist in Pranamaya Kosha, and so do Chakras. They cannot be found in the physical body by dissection. Hence, SNS and PSNS are physical manifests (upperparts) of Pingala and Ida Nadis in Pranamaya Kosha (vital body). And the flow of Prana in these nadis governs and controls the basic functions of Anabolism, Catabolism, nerve impulses through SNS and PSNS and therefore, is considered most important in the practice of Prāṇāyāma.

The interesting aspect found by our seers is that the flow of Prana through these Ida and Pingala Nadis is connected with the left and right nostrils breathing respectively. When the Prana is balanced between the two nostrils and slowed down with awareness, the imbalances of Prana vanish. The Pranic balance, thus, opens up Susumna which is the central channel. Such subtle Pranic balance helps in realizing the potentialities within us which are called superhuman. P \* \* \* \*

To bring out this balance, the texts on Yoga offer very simple practices of Prāṇāyāma which can be classed as

Anuloma-Viloma Pranayamas. Anuloma means breathing in and Viloma means breathing out. These are permutations and combinations of breathing in and out slowly through a single nostril, alternate nostrils and both nostrils. The six possibilities are shown here;

### **Anuloma-Viloma Prāṇāyāmas**

- |                       |                        |
|-----------------------|------------------------|
| 1. Both nostrils      | Sukha Pranayama        |
| 2. Single nostrils    | a. Candranuloma-Viloma |
|                       | b. Siiryanuloma-Viloma |
| 3. Alternate nostrils | a. Candra Bhedana      |
|                       | b. Siirya Bhedana      |
|                       | c. Nadi Suddhi         |

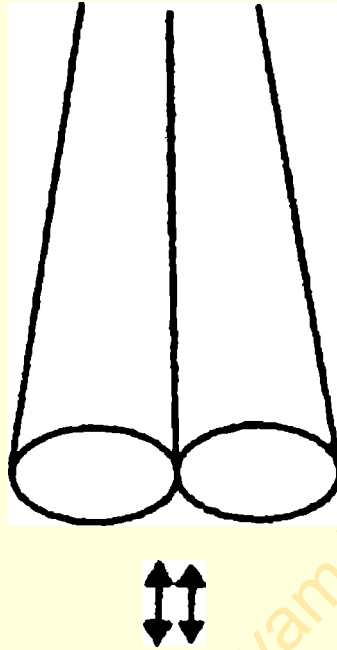
**1. Both Nostrils :** Breathing in and out goes on through both the nostrils. This is Sukha Pranayama also called Dirgha Savasana. This is the simplest of the prāṇāyāmas.

### **Technique**

- Sit comfortably in any posture, if necessary, to begin with, sit even on a couch or armed chair. With practice, you should be able to sit in Vajrasana or Padmasana with the spine erect.
- Relax all parts of the body; keep a smiling face.
- Inhale as slowly as you can. Feel that the whole body is getting light and energized.
- Enjoy the turnover at the end of inhalation and promote Kevala Kumbhaka.

memory, concentration power to  
and to promote positive health.

improve the quality of life



### ***Sukha Prāṇāyāma***

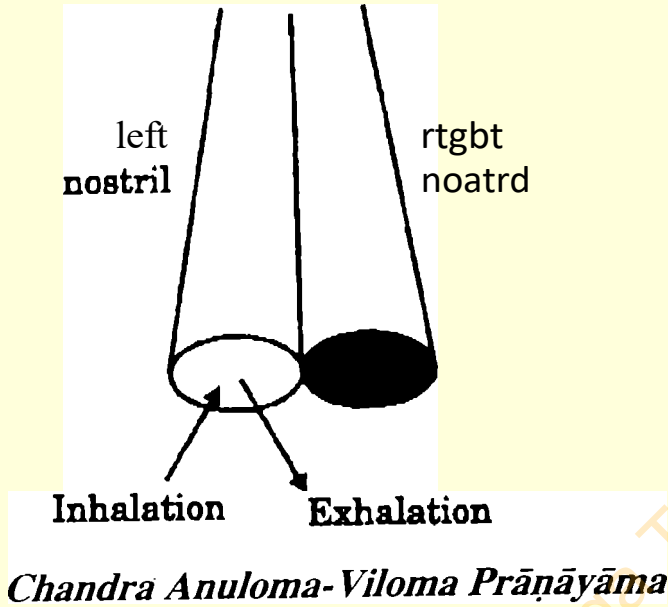
**There are no restrictions of age, sex, caste, creed or religion.** Sukha Pranayama reduces the basal metabolic rate, increases the vital capacity, strengthens the immune system and is the one we use under all conditions of rehabilitation. Even cancer patients have started reaping the benefits of this simple technique.

2. **Single Nostril** : In this, breathing is done either through the left or the right. These are called Candranuloma-Viloma or Siiryanuloma-Viloma, respectively.

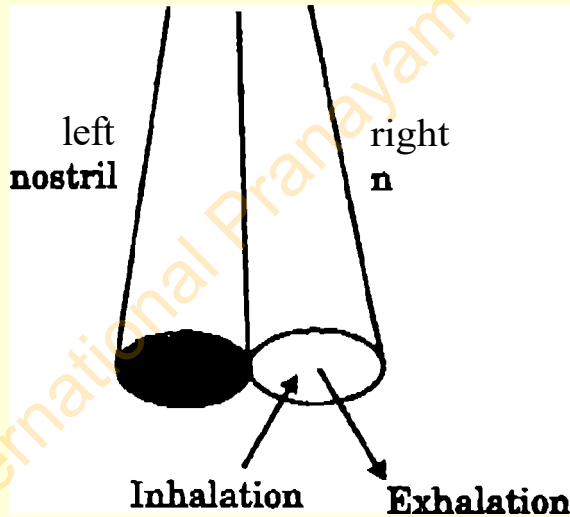
### **Methods**

#### **a. Candrñnuloma-Viloma Priinñyiima**

Here the inhalation and exhalation are through the left nostril (Candra Nadi) only. Right nostril is kept closed all the time using the right thumb in Nasikâ Mudrâ, the shoulders loose, elbow resting on the abdomen and the face relaxed.



b. ***Śūrya Anuloma-Viloma Prāṇāyāma***



In this, inhalation and exhalation are carried out through the right nostril (Śūrya Nadi) only, keeping the left nostril closed all the time.

### Benefits

Physical : These Pranayamas help in clearing up the nasal passages. With regular and long practice, flow of breath through each of the nostrils becomes smooth and slow.

**Therapeutic** : Very useful

Nasal Spectrum (DNS)

for Nasal allergy, Deviated

A young man 25 years, 5" 10" with a weight of 40 kgs was trying his best - eating a lot, consuming tonics, etc. to increase his weight. He came to Kanyakumari on a visit and sought advice for his problem through Yoga. He said that he was eating 5 times with a content of about 5000 calories per day. On **examination**, his left nostril was almost inoperative and breathing rate was 34 per minute. All that he had to do was to reduce his intake, open up the left nostril and slow down his breath. He gained weight, reaching 65 kgs in just 4 months.

A leading lady advocate 4" 6" tall with a weight of 95 kgs had tried all methods of weight reduction with hardly any effect. She started off with Siirya nuloma-Viloma Pranayama, **Savasana and an hour of Danas regularly in our Yoga classes.** Losing 4 to 5 kgs every month, her weight came down to 46 kgs in one year. Those who saw her after an year thought that she must be the daughter of the advocate. Even now, after 15 years, she still maintains her weight and youthfulness.

Candriñnuloma-Viloma helps in increasing weight and Siiryañnuloma-Viloma in reducing the obesity effectively.

For specific significant improvement, the recommended schedule is to have 27 rounds of these Pranayamas four times a day (before breakfast, lunch, supper and before going to bed). Systematic practices have benefited a large number of obese and underweight persons gained normal weight.

**Spiritual** : Cleaning of Candra and Siirya Nadis is the first step to bring the balance between the two Nadis. They lead towards unfolding of the inner layers of Consciousness.

**3. Alternate Nostrils** : In this series three combinations of Inhalation & Exhalation can be seen: a. Inhale through left and exhale through right - Candra Bhedana, b. Inhale through right and exhale through left - Surya Bhedana and c. Inhale through left, exhale through right and inhale through right and exhale through left - Nadi Suddhi.

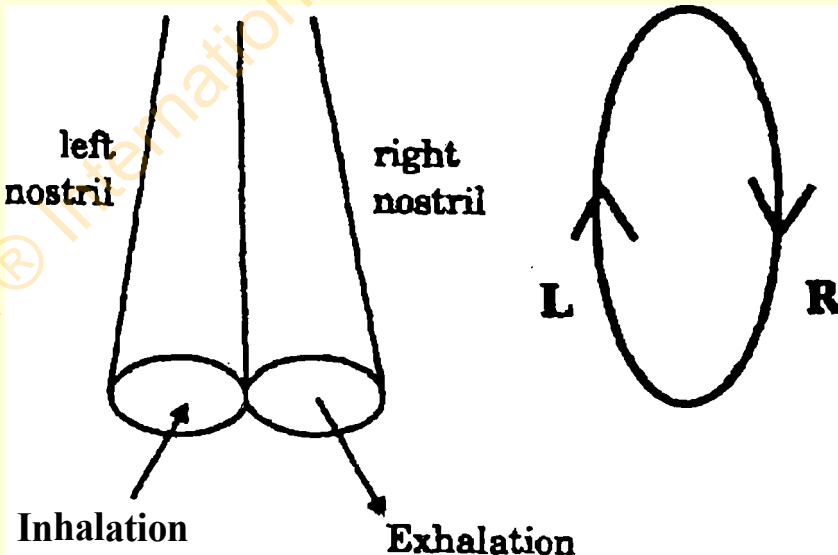
## Technique

### a. Candra Bhedana

- Sit comfortably in Vajrasana or Padmasana and if not possible, in Sukhasana., Use Nāsika Mudrā and close the right nostril with right thumb.
- Slowly breathe in through the left nostril, gently, smoothly and allow the breath to switch over at the end of full inhalation.
- Enjoy the Kevala Kumbhaka.
- Breathe out slowly through the right nostril and switch to the next round.
- Promote Kevala kumbhaka to last longer and longer.

This completes one round of Candra Bhedana. Repeat the prescribed number of rounds (9 rounds).

### *Candrabhedana Prāṇāyāma*



## B) Siirya Bhedana

The technique with Kumbhaka is described in Hatha Yoga Pradipika :

दक्षनाड्या समाकृष्य बहिःस्थं पवनं शनैः ॥ (ह.यो.प्र : २.४८)

ततः शनैः सव्यनाड्या रेचयेत्पवनं शनैः ॥ (ह.यो.प्र : २.४९)

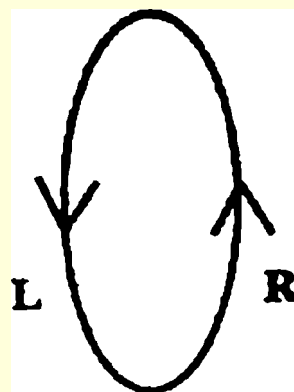
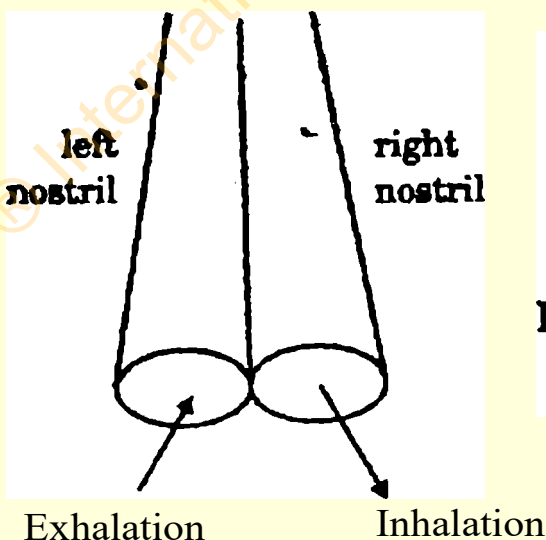
Asane sukhade yogi baddhava caivasanam tatah,  
Daksanadya samakrsya bahihstham pavanam s"aniah.  
(HYP : 2.48)

Akes"ad'dnakhagracca nirodh'avadhi kumbhayet,  
Tatab sanaih savyanadya recayetpavanam sanaih. (HYP : 2.49)

*Assuming the posture with ease and steadiness, the Yogī inhale slowly through the right nostril, holds it to tips of fingers and exhales slowly through the left nostril.*

And this is exactly opposite of Candra Bhedana technique.

### ***Sūryabhedana Prāṇāyāma***



### c. Nādi Suddhi

Nadi Suddhi is so important and fundamental that it has become synonymous with Pranayama. In Hatha Yoga Pradipika the process is this

धारयित्वा यथाशक्ति भूयः सूर्येण रेचयेत् ॥ (ह.यो.प्र : २.७)

fakraxtera 9rrai g5g4;ei iudx, ii (5.4.s : z. )

Baddhapadmasano yogi prñnam candrena piirayet,  
Dharayitvñ yathas"akti bhiiyah siiryena recayet. (HYP: 2.7)

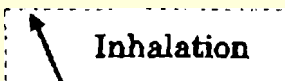
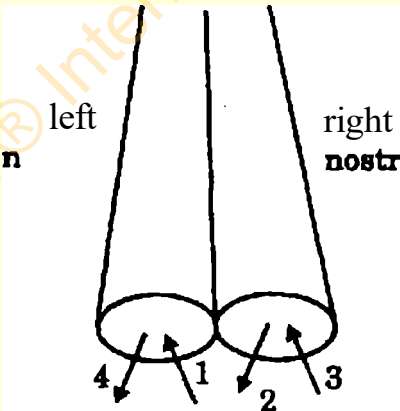
Pranam siiryena cakrsya piirayedudaram s"anaib,  
Vidhivatstambhakam krtva punascandrena recayet.

(HYP: 2.8)

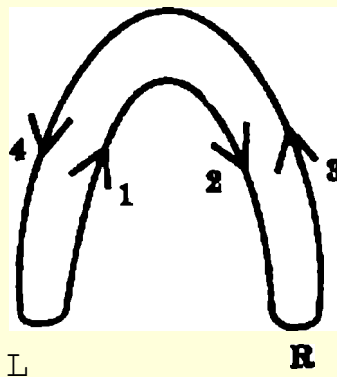
*Sitting in PadmSsana, the YogI inhales through the left nostril/, holds the breath as per one's capacity, exhale through the zIght, and inhales through r?pñf, after performing Kumbhaka, exhales throiiip•h the left.*

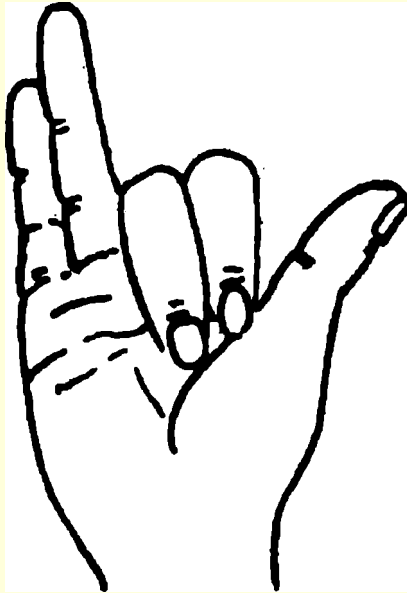
#### *NSpâSoddhl PrSySyñma*

Begin by exhaling completely  
through the left nostril



Exhalation





### ***Nāsikā Mudrā***

#### **Technique**

- Take up sthiti.
- Inhale through the left nostril by closing the right nostril with the thumb in Nasikā Mudrā.
- Enjoy the turnover and lengthen the duration of Kevala kumbhaka.
- Open the right nostril and close the left with the ring finger and the little finger to exhale slowly through the right.
- Enjoy the turnover and Kevala kumbhaka.
- Slowly inhale through the right nostril.
- Promote Kevala kumbhaka.
- Open the left and close the right nostril through the thumb of the right hand (in Nāsikā Mudra) and exhale through the left nostril.
- Enjoy and promote Kevala kumbhaka.

This completes one round of Nadi Suddhi. Repeat the prescribed number of rounds (9 rounds).

## Benefits

**Physical** : These three Pranayamas promote balance between the two nostrils effectively apart from cleansing the nasal tract.

A balance between the Sympathetic Nervous System and Para-Sympathetic Nervous System, and Anabolic and Catabolic processes is brought about and the homeostasis is restored. Metabolic rate is decreased as in all other Pranayamas.

**Therapeutic** : Bronchial Asthma, Nasal Allergy, Bronchitis and many other respiratory disorders are helped by these practices. Reduction in anxiety and stress levels are the therapeutic benefits. Patients with high BP should concentrate on Candra Bhedana and Nadi Suddhi; patients with chronic cold on Siirya Bhedana.

**Spiritual** : Bringing balance in Priina in the Pranamaya Kos" is vital to spiritual growth. These Priiniyiimas are used extensively as preparation to higher life and spiritual progress. Concentration, clarity of mind, memory, Intelligence Quotient and creativity are enhanced by these Priin ay amas. Siirya Bhedana particularly for IQ (featuring the left brain), Candra Bhedana for development of creative and intuition (featuring the right brain) and Nadi Suddhi for the rest are the well-known benefits.

The great Yogis and spiritual masters in this country had recognised the importance of these balancing Priiniyiimas and prescribed Nadi Suddhi to all (those who sought guidance) for six months. Half an hour to one hour twice a day for 6 months can build a beautiful foundation for a fine superstructure of spiritual and Yoga way of living. It is also mentioned in Hatha Yoga Pradipika (2.10) that one can practise 4 times a day for 3 months, 80 rounds each time to achieve Nñdi Suddhi. It is for this reason that we have included Nadi Suddhi as an intergral part of all our Yoga courses.

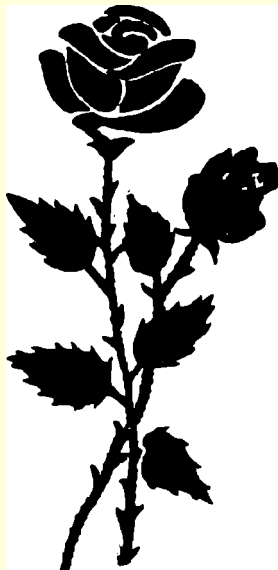
The lop-sided growth of personalities can be effectively

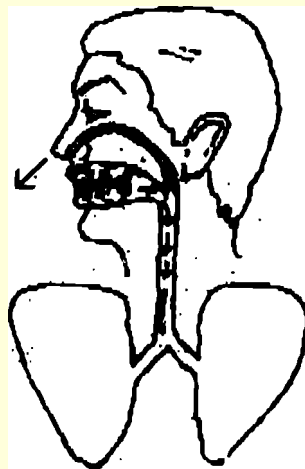
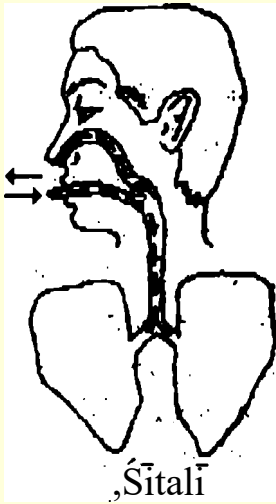
brought to a balance suitably by adjusting the practices of Candra and Siirya Bhedana Pranayamas. For example, an artist, as a creative person, needs his critical faculty to be sharp and hence, Siirya Bhedana is prescribed more. Similarly a highly analytical mind getting too dry (which may lead to excessive intellectualisation, neurosis or schizophrenia) can be balanced by developing the 'heart' featured by love, affection, intuition, creativity, etc. by practising Candra Bhedana Priinñyama. Thus, personality change can be brought about effectively. Steady systematic practice of Nadi Suddhi Pranayñma can bring balance - (samatva) equanimity the key to spiritual growth.

**It is important to remember that keeping awareness is the key in the performance of all Priiqiiimas.** The building up of awareness should be kept up through the Prñqay annas described in this chapter in addition to the balancing aspects.

Thus we have learnt so far the three basic factors of Prññyama

1. Slowing of breath.
2. Awareness of breathing, and
3. Balancing of breath.





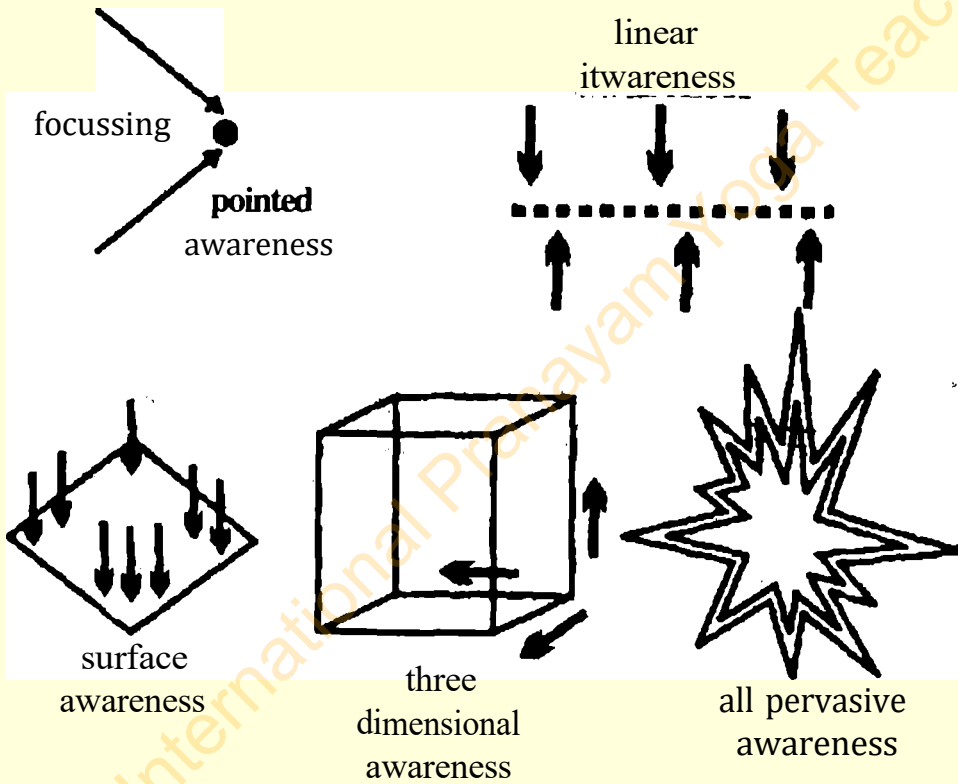
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# EXPANSION OF AWARENESS



From pointed...to  
three dimensional and all pervasive awareness



*Expansion oPA wxzeness*

# EXPANSION OF AWARENESS

Progress in Prāṇīyāma results in two basic facets of growth:

1. **Increased sensitivity, and**
2. **Expansion of awareness**

Having built a fine base through the three facets of Pranayama - slowing down, awareness and balancing breath, the Yogi would step into subtler and deeper aspects of Pranayama. We have already stated as to how we build the first aspect of Pranayama. Awareness starts as attention. Attention brings the conscious brain (neo-cortex) into operation. In the initial stages of any Prāṇīyāma, the awareness is in the form of attention and the progress is fast. But soon the process runs mechanical. Stagnation is a common feature not only in all Prāṇīyāmas but also in all Yoga practices. Why does this happen? This is because our physical system is built that way.

Initially, we may pay full attention while learning the technique; our 'conscious' brain (called the cortical region of the brain or neo-cortex) comes into operation. It is this part of the brain which distinguishes the brain of a human being from that of monkeys and other animals. All conscious activities are governed by the neo-cortex which programmes the entire process and passes on the task to the lower brain which continues the process repeatedly without involving the neo-cortex. It is then that the process is said to have become mechanical. This process is called 'Automatisation'. This is how our conscious brain is spared from involvement in day-to-day trivial activities like walking, cycling, driving, etc.

Naturally the remedy is Yoga which is a **conscious process of de-automatisation by breaking this chain or feedback loop**. It is for this reason that awareness is much emphasised in all the techniques of Yoga including Pranayama.

Attention is the first step to enter into awareness.

Attention and awareness are built only if sensitivity develops. Tamas has to be shattered for invoking sensitivity **which** is a facet of Rajas. Modern age has invoked Rajas by increasing desires for enjoyment. No doubt, we have turned active and sensitive in the wake of this age of attractions of sense pleasures. This sensitivity and sharpness has increased our understanding of the physical universe around and has brought us to this Hi-Tech era. However, this increased sensitivity has started turning into over-sensitivity with all its attendant hazards mentioned earlier.

Exactly the same thing may happen if we invoke sensitivity by Kapâlabhati and use only 'attention' in all the Prînaykmas. There could be lop-sided growth of sensitivity which may lead to hazards of over-sensitivity in the life of a Sadhaka to irritability, anger, excessive hunger, sexual urge, etc. **hence, the growth of sensitivity should go hand in hand with the expansion of awareness.** From attention as a first step in awareness called pointed-awareness to linear, surface and three-dimensional awareness.

Before we proceed to cooling Prânayâmas, we will explain as first the Ujjayi Pr@ayâma, which makes us attentive and thus we enter in the sphere of awareness. Attention at the throat in Ujjayi brings the conscious brain into action and thus relieves a practitioner from the stagnant mechanism of life.

## उज्जयी Ujjāyī

The Samsk;ta term Ujjayi means victorious; Ujji is the root which means to conquer or acquire by conquest. It is also known as the psychic breath.

In this Praqayâma, flow of air through the trachea constricted by the partial closure of epiglottis makes the air rub through the surface and produces a hissing sound. **Awareness is built in process.**

In Hathayoga Pradipika, this Prâpayiima is explained thus:

पूर्ववत्कुंभयेत्प्राणं तथा।  
श्लेष्मदोषहरं कंठे देहानलविवर्धनम् ॥ (ह.यो.प्र. : २.५२)

Mukham samyamyā n̄ḍibhyamakrsya pavanam s'anaib,  
Yatha lagati kanthattu hrdayavadhi sasvanam. (HYP : 2.51)

Piirvatkumbhayetpranam recayedidaya tatha,  
Slesmadosaharam kanthe dehânalavivardhanam. (HYP : 2.52)

*Controlling the mouth (partially closing the larynx) the air should be so inhaled through the nostrils that a fine rubbing or hissing sound is produced from the throat down to the lungs; holding the breath, the air should be exhaled through the left nostril.*

## Technique

- Sit comfortably in any posture. If you can sit in Padmasana or Vajrasana with ease, it will be better.
- Relax the body and the face.
- Inhale slowly producing a hissing sound at the throat by partial contraction of the glottis. This can be learnt by imitating swallowing action but not fully. This allows the air to get in slowly. The hissing is the frictional sound as that of water flowing through a pipe.
- After full inhalation allow the breath to stop with ease and relax before you start exhalation. Kevala Kumbhaka can be experienced effectively at this juncture. Relax and enjoy this phase. It will help effectively in prolonging the Kevala Kumbhaka.
- Slowly start exhaling through the left nostril by closing the right nostril with thumb in Nasika Mudra. Prolong the exhalation as long as possible with ease. Enjoy the hissing sound.
- With the complete exhalation, the breath stops automatically before inhalation. Promote this Kevala Kumbhaka by enjoying and relaxing.

This is one round of Ujjayi Pranayama; continue the prescribed number of rounds (9 rounds).

## Benefits

**Physiological** : Apart from the usual benefits of Prāṇāyāma breathing, Ujjāyī strengthens the muscles of epiglottis which helps in reducing snoring and helps in voice culture.

**Therapeutic** : Tonsilitis, sore throat, chronic cold and bronchial asthma are greatly reduced by Ujjāyī. Cases of hypersensitive throat, problems like cough, excessive hiccups, etc. are also helped. Patients with anxiety will find this Prāṇāyāma very useful.

**Spiritual** : Pointed awareness or attention at the throat region is the beginning for spiritual growth.

Ujjāyī is a basic Prāṇāyāma and can be used in combination with most of the Prāṇāyāmas.

Let us see now, how we expand awareness through the cooling Prāṇāyāmas.

## Cooling Prāṇāyāmas

Three types of Prāṇāyāmas in this series are used:

|          |         |
|----------|---------|
| शीतली    | Sitali  |
| सीत्कारी | Sitkārī |
| सदन्त    | Sadanta |

Here, we use 'temperature' as a tool to recognise the flow of air to expand our awareness and increase sensitivity.

## The Techniques

### 1. शीतली Sitali (Beak-tongue Prāṇāyāma)

In Hathayoga Pradipika

जिह्वा वायुमाकृष्य पूर्ववत्कुम्भासनम् ।  
शनैर्घ्राणरंध्राभ्यां रेचयेत् पवनं सुधीः ॥ (ह.यो.प्र.: २.५७)

*Jihvayā vāyumākr̥ṣya pūrvavat-kumbhasādhanaṃ,  
Śanakaighraṇarandhrābhyāṃ recayet pavanam sudhīḥ.*  
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*Such the air //zouyh (beac of be tonyue; hold the break// as before and exhaJe sJowJ trou,ph the nostrils.*

## Technique

- Take up Sthiti.
- Stretch the tongue forward out of the mouth and fold it so as to resemble the beak of a crow.
- Slowly suck in the air through the beak and feel the jet of cool air passing down the trachea into the lungs.
- Enjoy the turnover and Kevala Kumbhaka
- Slowly exhale through the nostrils, carefully feeling the movement of warm air all the way up from the lungs through the trachea and the nasal passages.
- Enjoy the stoppage of breath and promote this blissful Keval kumbhaka before the breath starts moving in again through the beak of the tongue.

This completes one round of Sitali Prñayiiima. Repeat 5 rounds.

## 2. Sitkiiri (Hissing Breath)

In Hathayoga Pradipika :

एवमभ्यासयोगेन कामदेवो द्वितीयकः ॥ (ह.यो.प्र. : २.५४)

Sitkam kuryñttathii vaktreghriinenaiva vijrmbhikñm, Rvamabhyiisayogena Kamadevo dvitiyakab. (HYP : 2.54)

*By due ring the breath in through the moath, maI e o hissing sound, wirñoor gidplH , and exhale thzouph Me nose. By practising this, one becomes a second KSmade va.*

## Technique

- Take up Sthiti.
- Fold the tip of the tongue inwards and press the root of

the upper palate with the tip of the **tongue**. The **folded** tongue slightly comes out between the two rows of teeth and provides a narrow opening on both the sides.

- Slowly suck in the air which enters in through the two sides and diffuses throughout the mouth **and moves** down the trachea into the lungs.
- Promote Kevala Kumbhaka and feel its effects.
- The warm air is exhaled out slowly through the trachea, nasal passages and the nostrils and the breath stops automatically.
- The deep relaxation obtained due to cooling extends the Kevala Kumbhaka.

This completes one round of Sitkâri. Repeat 5 rounds.

### 3. , **Sadanta (Clenched-Teeth Priiqñyima)**

**दन्तेन सह इति सदन्तः ॥**

Dantena saha iti sadantah.

*The PrSyâyoma performed using the teeth, is Sadanfa.*

In this Pranayama, the teeth are pressed together, tip of the tongue kept behind the teeth and air is sucked in. The air moves over the gums and slowly through the crevices of the teeth into the mouth and passes down the trachea into the lungs. Except this change, all other steps are the same as in Sitali and Sitkâri Pranayamas.

## **Principle of Differential Evaporation**

You all must have seen the water in a mud pot remains cold. This is because the water particles come out of the pores and evaporate. The latent heat of evaporation is absorbed and the water gets cold.

In the same way, when air flows over the surface of the tongue, the saliva evaporates and the heat sensors on the tongue record a cooling effect. In the inner surfaces of trachea, etc, the coolness is due to the evaporation of the mucous secretions.

### *Principle of Cooling Prāṇāyāmas*



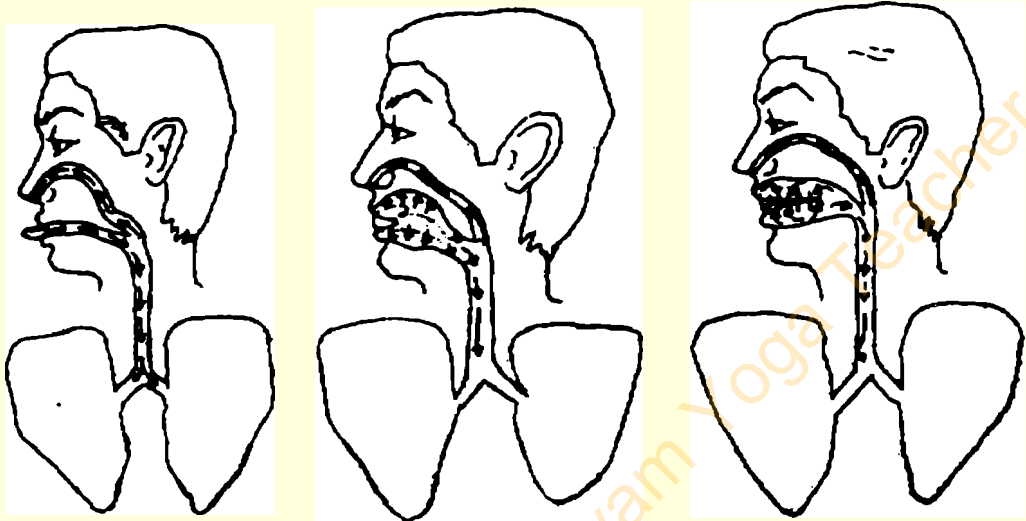
As air enters the lungs, it will acquire or attain the temperature of the body. This warmed up air moves upwards during exhalation and can be felt as the surface is already cooled earlier.

This temperature differential is the one that helps in recognising the movement of air and thus builds up awareness and expands the same from linear awareness to surface awareness.

### **Flow of Air in the Three Prāṇāyāmas**

In Sitali **Pranayama** the air moves in through the beak of the tongue slowly as a jet into the trachea and lungs. The coolness is felt due to the movement of air all the way from the tip of the tongue down the lungs. The warm air from the lungs coming all the way out through the nostrils can be felt. The awareness is not restricted to throat only as in Ujjayi (pointed awareness) but also spreads to the tongue, trachea and thus the entire respiratory tract. The coolness and warmth (temperature aspects) are responsible for the recognition. Hence the first step in expanding the awareness from Ujjayi to Sitali is from pointed awareness to linear awareness.

This schematic diagram shows the flow of air through the mouth and down the trachea in the three Praniyamas.



ŚĪTALĪ

SITKARI

SADANTA

In Sitkâri Priiniiyima, the air enters from the sides through the openings of the tongue, turns over and moves in through the surface of the tongue not as a jet, but touching the entire inner surface of the mouth. Recognise the fine cool touch and the gentle diffused movement of cool air at all points on the inner surfaces of the mouth. This is Surface Awareness in the mouth.

In Sadanta, we grow more sensitive and encompass the entire respiratory tract mouth, trachea, bronchi and lungs, upper nasal tract, etc. as we allow **the air to rub gently throughout the respiratory tract.**

The feeling of poise, bliss and elation characterises the growth in awareness. Due to deeper relaxation, the metabolic rate decreases and the length of Kevala Kumbhaka increases very significantly.

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## Benefits

**Physical** : All the three Priinayamas are helpful in relaxing the muscles, soothing the nervous system and even to reduce the Basal Metabolic Rate effectively. An overall cooling effect is observed. We feel light and fresh after performing Prñnayiimas. Particularly, the taste buds and the mouth are sensitized and the vital capacity of the lungs enhanced.

**Therapeutic** : Allergies due to cold can be effectively overcome by prolonged practice of these Pranayamas. Anxiety neurotics feel highly benefitted by these. These help in reducing the stress and tensions effectively. Sadanta is of particular value in reducing problems of the teeth and gums - decaying teeth, toothache, pyorrhoea, etc. Sitkari is of great value in hypertension.

**Spiritual** : Expansion of awareness is a facet of spiritual growth, which systematically moves from pointed to linear and then to surface awareness for perceiving things which were not perceptible until now. The unfoldment of the hidden dimensions of consciousness starts with the growth of awareness.

## Limitations

In the initial stages of cold, sore throat, etc. the performance of these Pranñy mas can aggravate the situation. Similarly patients of bronchitis are told not to perform these to begin with.

## Breathing through the mouth

Often the question arises: Is it advisable to breathe through the mouth in these practices?

Normal breathing should be through the nostrils since the nose acts as an effective air conditioner by

- a. removing the dust and other foreign particles.
- b. bringing the air temperature to body temperature, and
- c. controlling the humidity of air to match with that of the body.

When the nose is not used for breathing, all these three factors of control are absent. That is why doctors recommend to breathe through nostrils and not through mouth.

However, in these Pranāyamas, purification of air takes place as the air goes through the tongue or crevices of the teeth. The dry air, if any, will get humidified while inhaling and absorbing the salivary secretions in the mouth. Regarding temperature, we are consciously using the differential for the growth of awareness. Hence all the three aspects of our air conditioning are taken care of.

Further, the total number of breaths (about 30 for all the 3 types) is so small compared with the total number of breaths in a day that the breathing through the mouth will be of no danger at all. In fact, when our nostrils are blocked due to cold and nasal allergy, we breathe through the mouth for much longer time with hardly and danger to the system.

## Other Varieties of Cooling Pragflyfimas

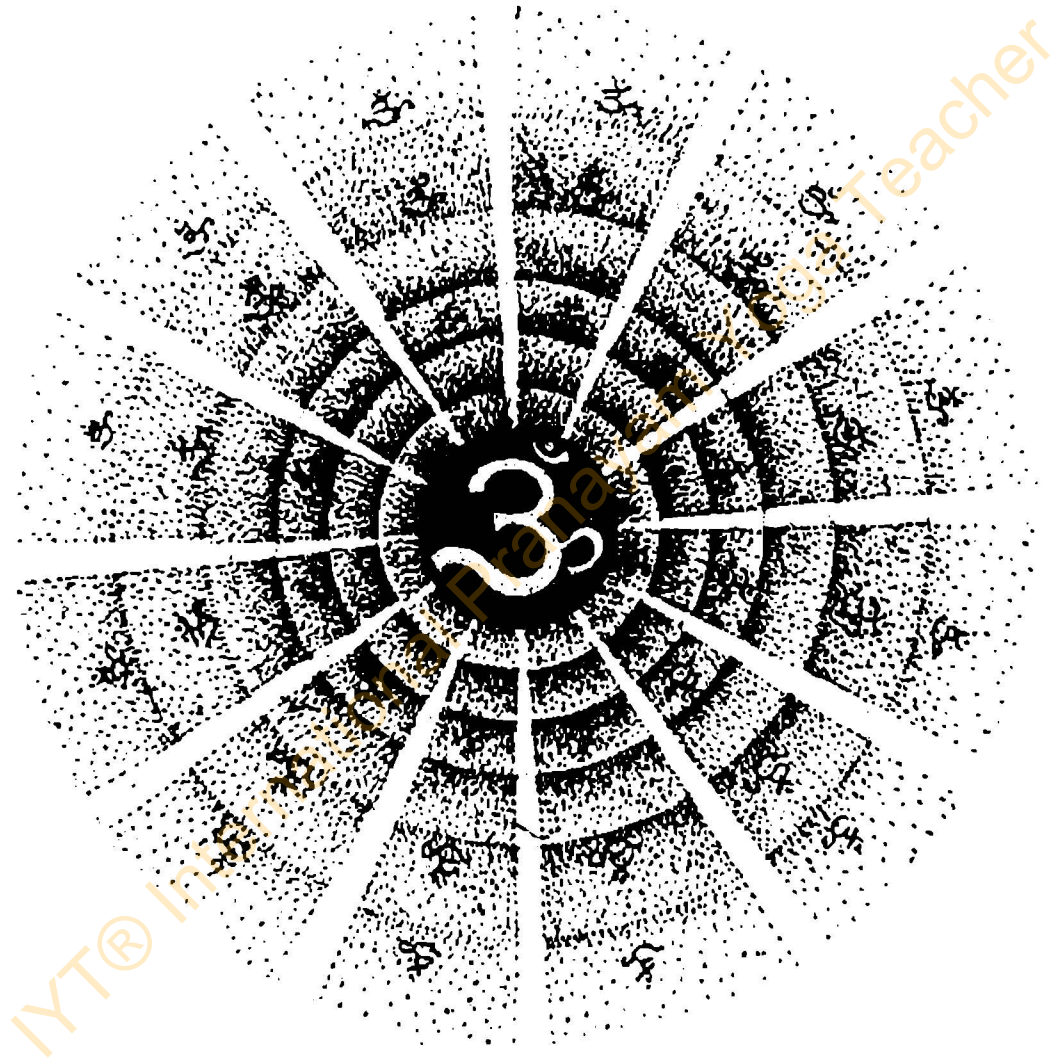
While the inhalation is fixed through the tongue or teeth, exhalation can be through both the nostrils, or either nostril or through alternate nostrils.

Breathing out through the right nostril increases the effectiveness of the cooling Pranayamas while exhalation through the left reduces its effects. One exhalation through right and another through left brings balance.



# LAYA - THE MERGER





# LAYA - THE MERGER

From surface awareness to three dimensional awareness and then to all pervasive awareness - this growth is accomplished by Bhr̄mari and M̄irch̄ñ Pranayamas described in this chapter. They come under the name Laya Pran̄yamas.

We have seen how awareness can be expanded by using the 'temperature difference' in the cooling Pranayama from pointed awareness to linear and surface awareness. Sound vibrations in Bhr̄mari Pr̄ñayama are used to further grow in awareness.

## भ्रामरी Bhriimari (Humming bee Pr̄ñayama)

The term Bhr̄mari is a Samskṛta word meaning a female bee. Bhr̄mara is a male bee. In the Bhr̄mari Pr̄ñayama a humming sound resembling that of the female bee is produced.

In this Pranayama, in Hathayoga Pradipikā it is said:

Vegadghosam piirakam bhr̄nganadam  
bhriiginadam recakam mandamandam,  
Yogindranamevamabhyasayogaccitte  
jata kacidñnandalilñ. (HYP : 2.68)

*While in faster inhalation (than exhaling) the air produces a humming sound like that of a male bee and in slow exhalations produce the humming sound of a female bee. The Yogīs do this Pr̄ñāyāma for long durations to get ecstatic state of mind.*

## Technique

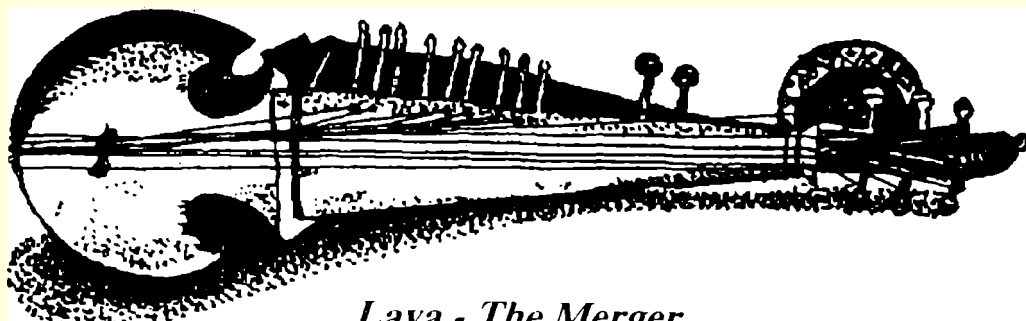
- Take up sthiti for Pranayama
- Inhale fully.

- While exhaling produce the humming sound of a female bee. Prolong the breath and the sound as far as possible effortlessly, without jeopardising the feeling of vibrations throughout the body.
- The breath stops. Experience the fine Kevala Kumbhaka and the sound vibrations continuing to resonate throughout the body. Enjoy this blissful state of mind.
- The air starts moving in. Produce a high frequency sound of a male bee while inhaling. The whole body should feel the resonance produced by this Pranayama often called Bhramara.
- The breath slows down and stops with ease. The high frequency sound mellows down to silence outside; but vibrations throughout the body elongate this phase of Kevala Kumbhaka as much as possible by enjoying the same.
- This completes one round of Bhr̄mari Pranayama. Repeat all the steps for the prescribed number of rounds (9).

## Resonance - The Key in Bhr̄mari

The most important aspect in the performance of Bhramari Pranayama is to produce resonant sound vibrations both during exhalation and inhalation.

The tuning of a stringed musical instrument is an example of the positive usefulness of resonance. Violin is tuned effectively, plucking the string at one end would produce beautiful resonance and the vibrations can be felt in each and every part of the instrument.



*Laya - The Merger*

IYO® International Yoga Organisation

The phenomenon of resonance was scientifically understood in the early parts of the nineteenth century.

*A group of marching soldiers saw a bridge collapse as soon as they crossed it. Strong winds and floods did not seem to be the cause. The bridge was built by the British in 1826. It was destroyed by the British in 1831. The bridge was built by the British in 1826. It was destroyed by the British in 1831.*



### ***Break the steps on the bridge***

*This episode brought to science a new phenomenon called resonance. When there is a matching of the frequencies from two or more sources, the waves compliment one another and high amplitude waves are generated. The natural frequency of the bridge matched with the frequency of the March Past and the bridge was subjected to high amplitude oscillations resulting in its collapse. Hence the rule 'break the steps while you cross the bridge' soon came into force in all army injunctions.*

A similar fine tuning is to be done in the human body. This is the natural frequency of the body. We have to so adjust the frequency of our sound production that the resonance is produced. Qualitatively, we should be able to feel the vibrations throughout the body from head to toe. This is called the three dimensional

awareness awareness developed throughout the body. Hence it is sound resonance which is most important in Bhrâmari.

To begin with, we should concentrate on getting resonance only during exhalation. Many people try to prolong the sound and thus miss the aspect of resonance totally. The development of three-dimensional awareness will then be missed and the effect will be very marginal. **Hence it is more important to produce a fuller sound featured by resonance rather than trying to prolong the sound while performing Bhriimari Priiniinyāma.** After learning the exhalation part correctly, we can go over to the production of sound during inhalation.

As we are accustomed to produce sound only during exhalation, it will be quite a task before we learn to generate sound during inhalation. We shall have to so constrict the glottis, neck and nasal cavities that the air entering into the voice box would vibrate the vocal chord very effectively to generate sound. With practice we will be able to increase the volume of the sound or alter the frequencies at our will, as we do in exhalation. It is then that we can get resonance even during inhalation.

## The Female and the Male Bee Sounda

It is well-known that in human species, the female voice is at a higher pitch or frequency compared with that of a man. A lady's voice is sweeter, even when it is not cultured or trained compared to man's.

But it is interesting to note that in lower species like birds or insects, the opposite is exactly true. A male bee's voice is higher in pitch than a female bee's voice. It is sweeter and more attractive. In birds, it is the male that has the beautiful and decorative feather. Probably because it is the male of these lower species that need to attract the females.

Bhrñmari Pranayama consists of two stages:

- a. Sound produced during exhalation like a female bee lower in pitch/frequency.

- b. Higher frequency sound during inhalation resembling the humming sound of a male bee.

Apart from the Kevala Kumbhaka in between, there is a fine lulling effect of this Pranayama on the mind which leads to 'laya' or merging of the mind leading to Samadhi.

## Stages in Bhriimari

Continued practice of Bhr̄mari leads not only to fine 3D awareness, but also to higher and subtler states of consciousness. A series of inner experiences result from the practice of Bhr̄mari. Gheranda Samhita describes these experiences vividly.

अर्धरात्रे गते योगी जन्तूनां शब्दवर्जिते ।

कर्णौ पिधाय हस्ताभ्यां कुर्यात् पूरककुम्भकम् ॥ (घेरंड.सं.:५.७८)

Ardharātre gate yoga jantiinam s"abdavarjite,  
Karpou pidhāya hastabhyam kuryānt piirakakumbhakam.

*At past midnight in a place where there are no sounds of animals to be heard, let the TO pl° practise Pūraka and Kumbhaka closing the ears with the hands.*

शृणुयाद्दक्षिणे कर्णे नादमन्तर्गतं शुभम् ।

प्रथमं झिञ्झीनादं च वंशीनादं ततः परम् ॥ (घेरंड.५.७९)

मेघझर्झरभ्रमरी घण्टाकांस्यं ततः परम् ।

तुरीभेरीमृदङ्गादिनिनादानकदुन्दुभिः ॥ (घेरंड.सं.:५.८०)

Srnuyāddaksine karpe nadamantargatam subham,  
Prathamam jhiñjhinadam ca vans"inadam tatM param.  
Meghajharjharabhramari ghantakarṅsyam tats param.  
Turibherimrdaṅgadininad'anakadundubhih. (Ghe.S.:5.79-80)

*He will then hear various internal sounds in his right ear. The first sound will be like that of a drum, then that of a flute, then that of a thunder, then of a drum, then of a beetle, then of bells, then those of gongs of bell-metals trumpets, kettle-durms, mṛdaṅga, military drums, dundubhi, etc.*

**भ्रामरीसंसिद्धिः**

Evam nanñvidho nado jayate nityamabhyasat,  
Anâhatasya s'abdasya tasya s'abdasya yo dhvanib. (5.81)

Dhvanerantargatam jyotirjyotirantargatam manah,  
Tanmano vilayam yati tadvisnoh paramam padam,  
Evam bhramarisansiddhih samadhisiddhimapnuyat. (5.82)

*Thus various sounds. are recognized by dolly practice of this Kumbhaka. Last OF d11 1s heard the An0hata sound risinp• from the heart. In thls there is a resonance; in the resonance a light. In that light let the z ind be lzrxrersed. When the mind 1s absorbed, it reaches the highest seat of VI:sya (Paroma-Pads). By mastery over this Bhr0z arl 'Kumbhaka, one gets success in SamSdhl.*

We could see that Bhramari Pranayama invokes consciousness at subtler states featured by

- hearing different types of internal sounds.
- subtler sounds characterised by very subtle vibrations.
- visions of different types.
- jyoti dars"ana (experience of the light).
- experience of different mental states.
- laya or merger of the mind with vanishing of triputi (threefold process of seer, seeing and the seen) called Samñdhi.
- Keep the mind tuned to that point and enjoy the bliss of the process.

Unfoldment of the mind takes place as you lose body awareness. Longer the duration of Kevala Kumbhaka greater is the expansion and depth of perception.

Thus, the ultimate goal of Bharmari is, verily, Samadhi, the end point of Astańga Yoga of Patańjali.

## Benefits

**Physical** : Bhirmari soothes the nervous system by restoring homeostasis, cultures the voice by increasing the range of frequency (pitch) and melody.

**Therapeutic** : This is extremely useful in almost all ailments of the psychosomatic type as it reduces the stress factor and the associated imbalances, particularly, in dealing with the problems of sore-throat, tonsils, pains, etc.

**Spiritual** : As seen in different stages of Bharṇmari, it is an extremely beneficial Priin"dyṇma for spiritual progress, by developing three-dimensional awareness, the total body is felt. As Bhrṇmari stops, the resonance continues more and more and we will be able to feel the vibrations in the body and beyond. Gradually, the awareness expands beyond the body towards all pervasive awareness.

Bhriimari can be performed at any time of the day in any place. It has no limitations for its performance. The mark of progress in Bhrṇmari is **that the repetition of sound becomes** more and more melodious, softer and gentler and continues for longer and longer duration. As anusandhṇa - repeated several times a day grows, the awareness expands and the art of tension-free action becomes a part and parcel of our lives.

## %d Miircchfl (Swooning Préq&y&ma)

This word in Samskṛta means swooniny . This Priiqfiy iima brings the mind to such a state of lull that it resembles a swoon.

The progress and growth consists of expanding our awareness beyond the bodily awareness: from the re-dimensional awareness to all pervasive awareness. The awareness is not limited by the physical boundaries of the body. As we expand our awareness, the bodily feeling reduces more and more to a point where you have no feeling of the body at all, and the awareness is expanded beyond limitations.

In Yogasutras Of Patanjali is said

**प्रकाशावरणम्**

Tatab ksiyate prakas"iivaranam. (PYS : 2.52)

*Then the cover for enlightenment vanishes.*

This awareness transcends bodily awareness or three-dimensional awareness.

We have seen how Bhramari in its higher states of performance leads us to this all pervasive awareness. We present here the Miircchii Priiniiyama from the Gheranda Samhitii:

**कुम्भकं कृत्वा मनश्च भ्रुवोरन्तरम्**

**आत्मनि मनसो योगादानन्दो जायते ध्रुवम् ॥ (घेरण्ड.सं.५.८३)**

'Sukhena kumbhakam k;tva manas'ca bhruvorantaram,  
Santyajya visayan sarvan manomiircchñ sukhapradñ,  
Atmani manaso yogadanando jñyate dhruvam. (Ghe.S.:5.83)

*He ring performed kumbhaka with comfort, let us wffLdra w' the mind from all objects and place it at the space between the two eyebrows. This causes fainting of the mind, and I res happiness. By Joining the Marias with the Atms, the bliss of Yoga is certainly obtained.*

**Focussing and defocussing spontaneously occurs in Miircchii Priiqiiyima.**

**The Techique**

- Come to sthiti.
- Inhale slowly allowing the breath to stop in Kevala kumbhaka spontaneously.
- Allow the mind to be focussed in between the two eyebrows, effortlessly.
- Let the breath move out spontaneously and automatically to the second Kevala Kumbhaka.

We could easily see that this Pranñiyama is very similar to Sukha Pranayama or Dirgha Savasana and is very simple, effective and fruitful.

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# PRAJANUSANDHĀNA





# PRA2JANUSANDHANA

Mind, the manifest of Prana in the human spectrum shows up imbalances in the form of cañcalata, randomness, excessive rush of uncontrolled speed leading to neuroticism and in general Adhi, stress leading to many psychosomatic problems of modern era.

Emotions, the intensified manifestations of mind packed with energy, trigger off reactions throughout the body through the twofold process: sympathetic and para-sympathetic nervous imbalance (electrical activity) & endocrine imbalance (chemical activity). Long standing emotional upsurges show up as distorted personalities and even lead to deep depressions.

We use intellect, the higher manifest of Prana featured by the power of discrimination, and analysis to correct the wrong notions. Else, a sharp intellect with wrong notion can also lead to great misery and even psychosis.

Unless we gain mastery over prana and thereby on mind, emotions and intellect; restlessness, cycles of emotional upsurges, and misery will continue to haunt our lives. **Prñqiiyima, hence is mandatory to overcome the miseries and basic problems of our lives.**

Recognition of breathing imbalances is the first step in gaining mastery over breath and thereby on Prana. Inner blocks, constrictions etc. should first be cleared by Kriyas. Kapalabhati is one of the most effective steps. Even Agnisâra Kriya will be of great help. The excessive speed, jerks, randomness of breathing and wrong breathing habits should be corrected by Sectional Breathing.

Entering into the realm of Pranayama is accomplished through Bhastrika. The next step is to increase sensitivity, recognise imbalances in breathing between the twin nostrils, bring balance and further slow down the breath Ujjâyî, Anuloma-Vitorna group of Prsnayamas cod the most important Nadi Suddhi. Then, sensitise further to incre'ase

the depth of perception. Expansion of awareness should complement the increasing sensitivity. The **awareness** has to be expanded from pointed to linear and surface awareness. Bhrâm through sound expands the awareness to three Dimensions. Miircca can raise us to all pervasive awareness; finally towards the 'Silence' the abode of all bliss, knowledge, creativity and freedom. All these have been incorporated into the first module course on Prân.iyyiima. Thousands of people have been using this course and gained tremendous benefits in terms of reduced health hazards, improvement in the quality of life, fine progress towards the art of holistic living featured by bliss and poise, health and harmony, and peace and efficiency.

The practice of Prâpayâma should not be only limited to 30 minutes or 1 hour either in mornings or **evenings**, but **start** spreading throughout the day. Periodically check up your breathing-speed, which nostril is flowing freely and correct them. Also start feeling the Prân.a throughout the body and develop the all pervasive awareness by recalling the vision of the beautiful blue sky. The following can be the specific times of the day for recall to begin with :

- As soon as we get up
- During morning hours of yoga practice
- While taking bath
- Before breakfast
- Pre-lunch session
- Before taking tea
- Evening after you come back from work
- Just before supper
- Night before going to bed.

Everyday, in the beginning phases of practice, it is good to write in the diary, in the night before sleeping, review how many times, you were able to check up your breathing, to correct, expand your awareness and depth of perception.

After about 2 to 4 weeks you will find that your breath awareness becomes continuous. You will find your efficiency increasing greatly over weeks, months and years of practice.

## Marka of progress

The clear mark of progress is the' reduction of the basic rush of emotions, particularly of the six enemies Kñma (IUST), Krodha (anger), Lobha (iniserliness), Moha (infatuation), Mada (ego) and Mñtsarya (jealousy). You move from your slavery to these emotions, towards mastery over them. The stress reduction is clearly seen. Enthusiasm, bliss, lightness, peace, harmony, energy, compassion, service attitude, health will increase the perceptible improvements in the quality of life.

Memory, Intelligence quotient (IQ), creativity and enhancements are seen often clearly in many of the practitioners of Priipñyiima.

*Some years Hter his return to India, Sri Aurobindo started certain practices of Yoga. He, however, was conEned for the time being to sustained PrSySySma, for three hours in the morning and two in the evening. The immediate effect was a marvellous mental Jluination, p arnayata km this resulted an unprecedented flow of poeoy. His health improved too, his memory becarrie sharp, the brain seemed to race with a new energy and a clearer sense of direction. Later he note 'SSvitri' which Is the longest poem in the whole of English lliteratum.*

Research studies have clearly shown that Pranayama can improve the autonomic stability and harmonise the functioning of the brain.

With the emergence of inner bliss, peace and tranquillity, the broadening of vision, expansion of awareness, etc., service attitude, love for fell ow beings, national awareness and compassion for the entire creation start manifesting. **The small petty egoistic personality is shattered. We move towards freedom and expanded awareness.**

When we know Prana in its highest and subtlest form through Pranayama in its advanced stages, we will realise and experience this primal energy, Pranatattva the first

born of Atman. Then we will transcend all the human limitations of Manah, Buddhi, Ahmk'ara, Citta m, , , Mind, Intellect, Ego, Memory, etc., and perceive Superhuman levels of consciousness. Surely, one day this Prânavidya T fa I Prññyama will make man Divine and take him to Divinity, perfection itself.

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