



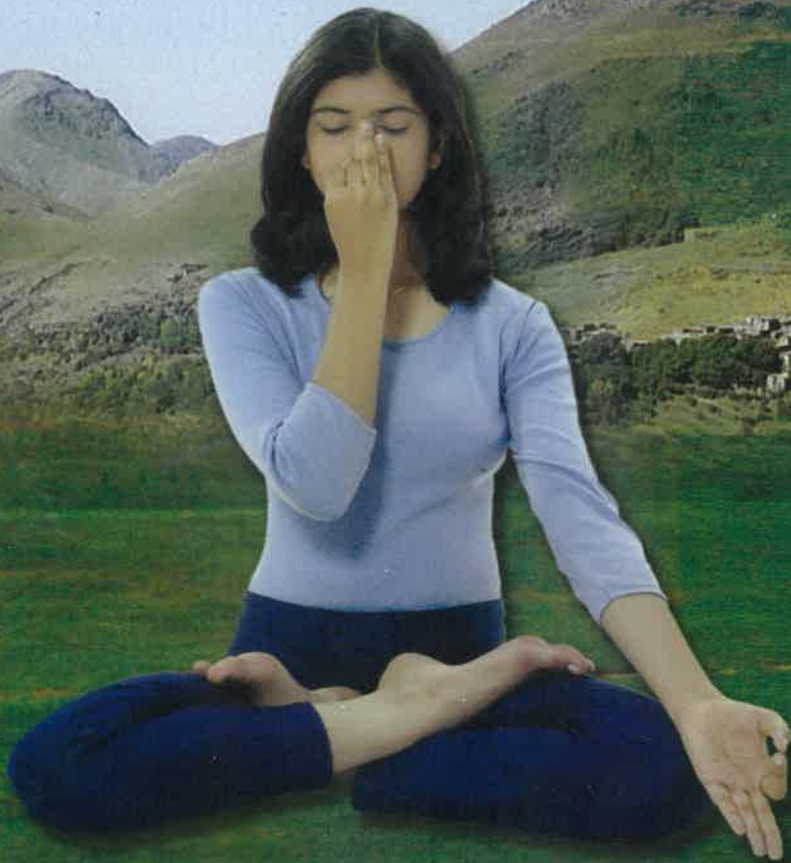
# Yoga Vijnana

The Science of Yoga

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# Yoga Vijnana

*The Science of Yoga*

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Yoga Vijnana

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## EDITORIAL

Present era is characterized by technological advancement aimed at making life comfortable. However faulty life style, pollution, modern work culture have made the life miserable and created havoc on all dimensions of life-physical, intellectual, emotional, social and spiritual. A need is being felt to introduce such systems that could help to promote well being at all levels.

In this light, Yoga though is essentially spiritual science has potential to tackle the problems at various levels. A large number of interdisciplinary studies have established its multi-faced benefits in all areas of life. It has been found good in bringing health and harmony by introducing a healthy life style. This issue presents a bunch of articles with special emphasis on scientific research in the field of Yoga, in relation to health and harmony.

In the present issue, the *first* article 'Evolutionary Quirks, Yama – Niyama & the Human Brain' by Yogacharini Yogamani Smt Meenakshi Devi Bhavanani. This article states that the power to reflect, to see the situation in the present moment freed of all past conditioning, and then to consciously choose the appropriate response is the essence of Yama – Niyama, the moral and ethical system on which Ashtanga Yoga is based.

The *second* article 'Yoga and Value Education' is by Dr R. K. Bodhe. Education in various dimensions is necessary for all round development of human personality which can be achieved through Kriyayoga. However there is a need on the part of yoga teachers of widening the range of applicability of yoga in such a way that not only the psychosomatic personality is subjected to yogic treatment but also such social aspects as education.

The *third* article 'Yoga as treatment for chronic pain conditions: A literature review' by Dr Evans Subhadra reviews the details of existing studies on yoga for chronic health conditions associated with pain in individuals across the lifespan. There is compelling preliminary evidence about the beneficial aspects of yoga in addressing a variety of pain conditions including osteoarthritis, back pain, headaches, and irritable bowel syndrome. Yoga offers a relatively low-cost and easily accessible CAM intervention for people with chronic pain conditions, and would likely be of public health benefit if it were studied more rigorously in the future.

The *fourth* article is on 'नाडी तंत्र एक परिचय' by परमहंस स्वामी अनन्त भारती explains about the nadis, types of nadis quoted in various traditional texts. The subtle yoga practice starts from pranayama which emphasizes the purification of the nadis. This also mentions the origin, distribution and culmination of the nadis.

The *fifth* article is a study on 'Effect of Yoga on Pulmonary Function Tests in Healthy School Children' by Dr Rajani Bala Jasrotia, Dr S Mondal, Dr A Gandhi, Dr V Kumar, Dr Shipra Gandhi. The study was undertaken to see the effects of yoga on pulmonary functions in healthy children in the age group of 10-14 years. It was observed that healthy children practicing yoga showed a significant increase in vital capacity (VC), forced vital capacity

(FVC), forced expiratory volume one (FEV1) and peak expiratory flow rate following yoga practice. The improvement in VC and FVC may due to increased development of respiratory musculature incidental to regular practice of yogic exercise. Pranayama makes the respiratory apparatus empty and fill more completely and efficiently which is recorded in terms of increased FVC. Increase in PEFr is due to decrease in airway resistance.

The sixth article is 'Role of yoga in the prevention of DM complications' by Dr Durgawati Devi, Dr Rajeev K Srivastava, Dr. B.K. Dwivedi. It was a 3 month study on 30 DM patients intervened with Yoga and Ayurveda therapy. Yoga therapy is useful in DM but it requires an intense biochemical, clinical and experimental study to establish this effect. The study concluded that the effect of yoga therapy can be explored in following way - It releases mental tension, improves peripheral circulation, decreases cholesterol level, due to proper abdominal massage it increases digestive power and relieves constipation, increases insulin sensitivity of cells.

The seventh article is 'Iyengar Yoga as a Complementary Treatment of Generalized Anxiety Disorder: Pilot Study' by Dr. David Shapiro and Dr Albert B. This is a report of the pilot study of the benefits of Iyengar Yoga practices designed for patients with Generalized Anxiety Disorder (GAD) and its potential as a complementary treatment of GAD. The participants were nine patients with GAD, who showed a clinical picture of anxiety and depression coupled with general neurotic symptoms and somatic dysfunctions.

The eighth article 'Concept of Nadanusandhana in Different Hatha Yoga Texts' by Mukesh Yadav states that Nādānusandhāna is an important practice of Nātha cult. In this practice Yogi hears the inner sounds (nāda, anāhata nāda). There are four stages of Nādānusandhāna which are Ārambhāvasthā, Ghatāvasthā, Paricayāvasthā and Nishpattyāvasthā. For hearing the inner sound, yogis sit in Siddhāsana and apply Shanmukhī mudrā. When prāna enters in sushumnā then different subtle and voluminous sounds like sound of bells, flute, drums, thunder, roar of mountains etc. are heard. As the practice progresses all three granthi-s are pierced and yogi attains a perfect state of body and mind. Nādānusandhāna as described in Hathapradīpikā, Hathatattvakaumudī, Yogopanishad etc.

The ninth article 'Beneficial effects of Iyengar yoga in patients with stress, stress-related disorders and cardiovascular risk – implications of recent research' is by Dr. Andreas Michalsen, Dr. Gustav Dob. This study aimed to evaluate potential effects of Iyengar yoga on stress, stress-related complaints, psychological outcomes and atherosclerotic risk in a series of studies with distressed patients. Two controlled prospective studies were conducted in self-referred female subjects who perceived themselves as emotionally distressed. Outcomes in the first two studies included a battery of psychological and quality-of-life assessment tools and the severity of complaints. In the third study, additional markers of cardiovascular risk and endothelial function (Flow-mediated-vasodilation, FMD) were measured. In the first study, women who participated in yoga-training demonstrated clear and significant improvements in perceived stress, emotional well-being, quality of life and complaints (chronic pain, head ache). In the second study both yoga groups (moderate and intensified) showed comparable and significant

improvements in psychological well-being, stress-symptoms and quality of life compared to waiting list controls. In the third study Iyengar yoga participants showed improved parameters of cardiovascular risk factors, results of FMD are currently analyzed. Iyengar yoga seems to be a highly effective intervention for subjects that suffer from stress, stress-related syndromes/disorders and chronic orthopedic or neurological pain.

The *tenth* article is on 'प्राणायाम के प्रभावों पर प्रमाण युक्त अध्ययन – एक समीक्षा' by डॉ. संजीव कुमार, सहायक निदेशक (आयुष), डॉ. परवीन बंसल, सहायक निदेशक प्रभारी, डॉ. संजय शर्मा, मेडिकल सलाहकार writes about the Pranayama, its types and evidence based study of its influences.

The *eleventh* article 'Physiological Appraisal of BSF Personnel before and after Yogic Practice' by Dr. U.S. Ray, Dr. Ishwar V. Basavaraddi, Dr. Mantu Saha, Mr. Omveer Singh Tomer, Mr. Kaushik Halder, Mrs. Anjana Pathak, Dr. Satish R. Gaikwad, Dr. Namrata Raj, Mr. Abhirup Chatterjee, Mr. Rameshwar Pal, Mr. Ram Kishore, Mr. Avadh Bihari Mishra. A group of cardiovascular and respiratory parameters along with performance related parameters were taken to observe the effect of yoga training on sixty healthy young adult males (n = 60) from the BSF personnel between 21-33 years with no previous history of cardiovascular and respiratory disorders, compromised physical health or psycho-physiological disorders, they did not have any previous exposure to yoga practice. The novelty of this study is it provides findings with thought provoking issue of increased anaerobic muscle power and also the altered chemoreceptive sensitivity, which may have wide applications in various situations.

The *twelfth* article "पद्मासनस्वरूप विमर्श" by Dr Ishwar V Basavaraddi, Dr Satyaprakash Pathak, Dr Aruna Anand and Miss Seema Rani has taken references of Padmasana from 30 different traditional texts including Hathyoga texts, several Puranas, etc. Three variations of Padmasana are described in all these texts. Padmasana has many other names in these texts like Ambujasana, Kamlasana, Saroruh asana, etc. In Hatharatnavali, 4 types of Padmasana are mentioned: Bandhapadmasana, Karapadamasana, Samphutitapadmasana and Shuddhapadmasana.

These selected articles are followed by a special section of book review and a section of activities of MDNIY followed by instructions to authors and photo gallery of activities in MDNIY. 'Yoga Vijnana', a quarterly journal from MDNIY determines to enrich the knowledge of the readers, practitioners and students from various fields. Due to some administrative reasons, we have combined and published the third and fourth issue of Volume II together. I hope you would accept it. I invite suggestions and articles for this journal from the eminent scholars and Yoga practitioners for improving the quality of the journal.

Om Santih Santih Santih //

Dr. Ishwar V. Basavaraddi  
Editor





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## EVOLUTIONARY QUIRKS, YAMA – NIYAMA &amp; THE HUMAN BRAIN

Yogacharini Yogamani Smt Meenakshi Devi Bhavanani

**M**any problems facing the average individual are **not their own personal problems at all, but rather difficulties common to each and every member of the human race.** In the long evolutionary unfoldment from the first form of life – the virus – 3.5 billion years ago, through the fishes (375 million years ago), the amphibians (345 million) the reptiles (300 million) right up to the mammals (60 million years) the accumulated conditioned responses of various life forms to environmental challenges have produced organisms which adapted and lived, or failed to adapt, and died. **The Highest Truth, the Greatest Success of the reptilian and animal kingdoms, is Survival.** The “fit” live. The unfit die!

Forty thousand (or 100 thousand) years ago, a great evolutionary event occurred. A mysterious force penetrated the dull, conditioned stimulus – response, pain – pleasure planes of existence – and Manas – or Consciousness – manifested on the earth plane. A New Creature – a Being with the power to think, to reason beyond its genetic inheritance – rose above animal – reptilian instincts. He / She was called “Man” or “Human” – literally a “Being” which possesses “Manas” or Consciousness. The force of that powerful evolutionary leap propelled the four – legged animal onto two legs and prompted the growth of a new brain structure – the neo-cortex and the pre-frontal lobes of the brain. Or, was it the other way around? Did the new brain structure develop, enabling the New Being

to manifest Consciousness? Which came first? The chicken or the egg?

Whatever the cause – effect sequence, this New Creature rose out of the conditioning of millions of years of fish – amphibian – reptilian – mammalian experiences. All these ancient instincts are still present in his brain structure. These old instincts and conditioned responses enable his heart to beat automatically, his breath to move in and out of his lungs systematically 21,600 times per day. These old sections of his brain enable him to digest his food and eliminate it; to seek out a mate and procreate, to nurture his off-spring and defend his family; to play and frolic in sheer exuberance of the life force. These old remnants of a past long gone are still present in the New Being’s “Old Brain” – the brain stem, the limbic system, the reptilian and mammalian complexes. But it is here that a “snag” has developed – an “evolutionary lag” so to speak. These “old structures” prompt “ancient responses” to “modern challenges” often totally out of proportion to the current situation. The old mammalian emotions produce adrenalin surges which stimulate “fright – flight – fight” responses to life and death challenges and appropriate physiological manifestations – the emptying of bowels, bladder, sweaty palms and feet, rapid breath and heart beats. This physiological change was useful when being pursued by a sabre – tooth tiger but becomes extremely useless and even harmful when it is triggered by the fact that one’s colleague at the

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office has gotten a promotion one expected for oneself or when someone else snatches a much-needed train reservation from right under one's nose by cutting the queue. These relatively "mundane threats" often prompt "life and death responses" such as rapid heart beat, urination, adrenalin rushes with desire to attack etc. Usually, due to social conditioning, these autonomic responses are curbed, but sometimes the residues linger sub-consciously, causing undefined anxiety attacks, high blood pressure, circulatory and respiratory disorders and so on. The old sections of the brain also trigger various other survival mechanisms – a sense of hierarchy in relationship to other creatures, a drive for territorial conquests, a thirst for power, seeking dominance in the herd; jealousy, rage, the killing instinct, desire to "eat or be eaten" by the other. These are all 'Blind passions', the animal instincts so vital to survival in the jungle which reign in these old segments of the brain. In so-called "modern civilized man" these "basic animal drives" have become more subtle, but they still exist in the fiercely competitive worlds of business, sports, media, religions, organizational power struggles, and of course, politics. The need to "prove oneself the best," the "top dog" which is so essential for success in any competitive activity can be traced right back to the "Old Brain" and the organism's primordial instinct to be "The Most Fit" so that it will win the "Sexual Sweepstakes" and ensure that its genes will be passed to the next generation. The only difference between the behaviour of humans and animals in these matters is that the drives become more abstract, more subtle and various types of social restraints evolved by the culture keep them in check.

The New Being, "The Man", the "Human" who walks upright on the earth, also now possesses

consciousness, a beam of light in the dark world of instinctual reptilian – animal existence. That "Light" enables the "New Being" to remember the past, to learn new lessons above and beyond the walls of conditioned response, to forge new responses to old environmental challenges. "Manas" or Consciousness can perceive beauty, can wonder at this mysterious world, can create tools and shape its own environment. This "New Being" can dominate and exploit lower life forms. Consciousness opened a huge window to the universe. Man could now look at the sky and see the stars and the great heavens. He could ponder his own fate and wonder at the mysteries of life and death. He now had the power of abstraction and was freed of the prison of sensory information alone.

This New Creature's brain weighed 1.5 kilos. It contained all the evolutionary lessons of nearly 400 million years of unfolding, from the fishes to the mammals in its structure. That brain could be divided into two classifications – the "Old Brain" which contained in function and structure – the impulses and instincts of the reptilian and mammalian creatures - and "The New Brain" the Cerebral Cortex, the Pre-Frontal Lobes – which made it possible for consciousness – awareness – thinking – reasoning – analysis – discrimination – to manifest.

This "New Being" is literally "half animal – half man", a creature struggling towards the Light, but chained to the past by the fetters of old primordial instincts and drives. This conflict between the "devil" and the "God" within is the saga of all evolutionary struggles, it is the "core story" of all the world's great myths. In Hindu parlance, it is the eternal conflict between the demons – *Asuras* – *Rakshashas* – those who "hate the light" and the *Devas*, the *Suras*, the

*Daityas*, the “lovers of light.” The *Asuras* wallow in the darkness of animal – reptilian desires, passions and instincts. The *Suras* revel in the light of consciousness and all the refinement which it assures – the arts, moral and ethical living, nobility of conduct, dignity of bearing, ideals, self-sacrifice and magnanimity. This struggle – mirrored in all great world religions, all great art, all the great human myths – is the struggle of every human to rise out of his primordial past and dwell in his true God Like Nature.

This inherent human problem – “the beast’s attempt to become the beauty” – is part of the Great Universal Scheme to unfold the individual soul – the *Jiva* – leading it to its ultimate destination – Union with the Universal – the *Paramatma*. This is the great dramatic saga of the transformation of the “individual personality” into the Universality.

This evolutionary saga of each *Jiva* is systematically analyzed in the *Garuda Purana*, said to be authored by *Maharishi Veda Vyasa* who reported that the teachings were taught to *Ramaharshana*, who in turn taught *Kashyapa*, who taught it to *Garuda*. This *Purana* states that the long evolutionary journey of the *Jiva* (individual soul) to union with *Paramatma* (Universal Soul) takes 84,00,000 incarnations. That is, each *Jiva* must experience 84,00,000 different physical forms before it achieves its final evolutionary state, *Moksha*, freedom from flesh – this final transcendence, *Kaivalya*, Yoga or Union of the *Jiva* with *Paramatma*.

According to the *Garuda Purana*, 21, 00,000 “births” must take place in each of four categories.

1. The *Jiva* must be born 21, 00,000 times in forms born of seeds (plants) – *Udbhija*.

2. The *Jiva* must be born 21, 00,000 times in forms born of sweat – *Svedaja*.
3. The *Jiva* must be born 21, 00,000 times in forms born from eggs – *Andaja* (birds, reptiles, fish)
4. The *Jiva* must be born 21, 00,000 times in forms born of womb (mammals) – *Jarayuja*

All these experiences in different kinds of living creatures produce more and more elaborate “brain structures”, as the brain accumulates forms and functions, becoming more subtle, more complex, more sophisticated with each succeeding incarnation, until finally, the physical structure is capable of manifesting Consciousness (*Manas*) in the human being.

But, when the *Jiva* reaches the level of “mankind”, the human manifestation, the *Jiva* must face several hurdles, several inherent problems, several obstacles. This is a kind of “evolutionary lag”, in which Consciousness is impeded in its upwards flow almost as though the Divine is testing the ability of the organism to withstand the shock of Cosmic Consciousness. The great *Maharishi Patanjali* in his *Yoga Sutra* has very succinctly dealt with these “evolutionary problems.” *Patanjali* has called these “hurdles” as “*Kleshas*”, “hindrances” or “obstacles” on the spiritual path and has listed them as five in number.

According to *Maharishi Patanjali* these *Pancha Kleshas* are:

1. *Avidya* – ignorance or the inability to perceive the real nature of things; submersion in the blindness of animal instincts and passions,
2. *Asmita* – egoism, false identification with the perishable body, the sense of “I – ness,”

“Me-ness” and “Mine – ness;” the sense of individuality which gives rise to the need to dominate and destroy others (eat or be eaten).

3. *Raga* – attraction the animal’s drive to pursue pleasure;
4. *Dweshha*, the animal’s desire to avoid pain (aversion);
5. *Abinivesha* (clinging to life; the instinct for self preservation, the survival instinct).

How brilliantly the ancient sage 2,500 years ago analyzed the essential human conundrum, the quintessence of the human enigma, the essential “**Knot of Human Bondage**” – a creature torn between its bestial urges, and the calls of its Divine Nature. These “**Kleshas**” are sometimes translated most correctly as “**Knots of the Heart.**” One could even term them “**Knots of the Soul – Spirit.**” Patanjali considered the Kleshas as the root cause of all human suffering – conflict, problems and difficulties.

When the animal rises up onto two legs and the skull expands forwards, when the pre-frontal lobes develop and consciousness is able to find a suitable instrument through which to manifest, an entirely new element – enters into the evolutionary scheme of things. The New Creature can utilize this consciousness to accelerate its own evolution into a higher form of being. It is no longer a prisoner of past conditioning. It has broken free from the inexorable chain of cause – effect (Karma). It now has the potentiality for freedom. It can now make aware choices in its responses to environmental stimuli and challenges. It is no longer a Pasu (an animal or literally, one who is bound by a Pasa, a noose – the noose being the nervous system and brain totally conditioned

by stimulus – response actions based on pleasure and pain). It is then that “**Yoga**” or “**The Unitive Impulse**” may be embraced and one may literally “lift oneself by one’s own boot straps” or in the words of Lord Krishna in the *Bhagavad Gita*, “Lift the self by the Self.”

The “New Creature” may now evolve itself consciously by cutting asunder, the “Knots of the Heart”, the Kleshas, as enumerated by Patanjali.

*Avidya* or Ignorance may be destroyed by conscious seeking for higher and higher levels of Truth. One must free oneself of blind animal passions, and consciously strive towards nobility of living. *Asmita* or Ego must be transcended by realizing that “the sense of I-ness is an illusion”, that in Reality, there is only Oneness. When personality fades away, Universality emerges. *Raga* – the lure of pleasure must be seen for the false mistress that it is and the horror of pain *Dweshha* must also be seen as an imposter, unworthy of fear. The human rises above these eternal dualities and heeds the cautionary advice of the *Katha Upanishad* – “*Do not mistake the pleasant for the good.*” Finally, one must “root out” the animal desire to “survive at all costs” by realizing that one is “not the body” but in actuality, one’s true being is the Universal Spirit which can never die.

How marvelously Patanjali has analyzed the root problems of the human condition.

Interestingly enough, a modern psychologist – philosopher, Ken Keyes in his book **ROAD MAP TO LIFE LONG HAPPINESS** has come to similar conclusions using different terms and taking another route.

Ken Keyes argues that in the long course of evolution, the “**Old Brain**” and the “**New Brain**”

developed over vastly different periods of time. Thus, he postulates, there is an essential “lack of communication” between the “old” (reptilian - mammalian) brain and the “new” (conscious, neo-cortex) parts of the brain. This is because the “old brain” developed over the course of 60 to 375 million years and hence is “powerful”, well-set in its ways. Its habitual responses to environmental survival challenges are strong and automatic – “kill or be killed.” Whereas, the “New Brain” the human consciousness is only 40 to 100 thousand years old, and hence “the new boy on the block.” This lack of communication between the two brains has produced what Ken Keyes calls the “Five Quirks” which he postulates cause most of the problems one faces in life.

Ken Keyes analyses these quirks as follows.

1. The “**Object Quirk**” – the animal brain sees objects only in a very vague, hazy, general sense and not in a specific sense. It views objects and classifies them as to how they may fulfill its needs or in what way they may threaten its safety. Thus, it confuses different people and things. It sees everything generally as friend or foe, provider of food or as a sexual possibility. It does not need to see any object with specific characteristics. For example, it does not choose a mate on personal charm or elevated character but simply as a means to gratify sex drive. Other objects – other creatures – are important only as means to satisfy basic needs.
2. The **Time Quirk** – Keyes says the “Old Brain” has no time sense. It does not perceive past or future. It lives only in the present moment. It “eats or is eaten.” There is no sense of tomorrow or yesterday. Everything

is immediate, now, urgent. Every experience is in “The Eternal Now.”

3. **Unsafe Stranger Quirk** – The “Old Brain” views all strangers with suspicion. The “unknown stranger” is a possible threat to survival or a competitor for resources. Any creature “different” from oneself and one’s species is a potential threat.
4. **Unchanging Entity Quirk** – To the “Old Brain” incapable of perceiving subtleties, everything remains the same – a tree is always a tree. It does not perceive the various changes, which all things pass through. It sees all things as “unchanging.” The perception of the subtleties of change are not necessary for survival.
5. **Adaptable Memory Quirk** – The animal does not need memory. The only memory necessary is what enables it to survive. Hence, what it remembers can be “adjusted” to whatever best helps it to survive. There is no objective truth. The only “Truth” to the animal brain is “survival of the fittest.”

What Keyes is trying to point out, is that the way in which animals and reptiles perceive the world is a much dimmer, less precise, less clear, survival – oriented perception totally geared to survival. This is much less than that available to the conscious mind. The “Old Brain” is fuelled by emotional responses. The basic motivating emotion is fear. The other important drives – sex, survival instinct, herd mentality, dominance, power struggles, nurturing and being nurtured – are all tied to the organism’s basic need to survive at all costs and fear of death or extinction.

For example, the “**Object Quirk**” manifests in human experience when a person in the past

was abused by a red-haired woman and hence, in future, always has a dislike for red-haired women. The “Old Brain” cannot see the possibility that all red-haired women will not abuse it.

The **Time Quirk** manifests itself in human behaviour in this manner: when one experiences unhappiness, one feels one is “always unhappy.” This may cause one to perceive another person as “always angry”, even though the person may only be angry at that moment. Witness how many husband-wife or parent-child quarrels begin with the words... ‘You always do this...’

The “**Unsafe Stranger Quirk**” is evidenced in the suspicion that people feel when a foreigner enters their circle, or someone of a different religion a different race, a different culture etc comes into their social circle. There is an instinctual fear, even though that person may be perfectly harmless.

The “**Unchanging Entity Quirk**” manifests when people cannot see that those around them are constantly changing, that they are not what they were yesterday. A thief may have reformed himself, but others may always perceive him as “a thief.” The husband may have overcome his bad habit, but the wife cannot see him anew. The **Adjustable Memory Quirk** occurs when people deliberately or unconsciously “re-arrange” their memories to support or justify their emotions or desires. For example, a couple who wish to divorce may “adjust their memories” to “remember” only the “bad times” or the “bad characteristics” of their partners.

Man’s close relations with the animal and reptilian kingdoms has found its way even into common expressions. Reptiles are cold blooded. They do not experience emotions. This is why

few people like to have reptiles as pets. Reptiles sense threats from predators and act – fighting or fleeing. They sense a possible prey to dine upon, and attack.. But, they do not feel fear. They do not nurture their young. They re-act only on the level of the survival instinct according to the characteristic responses of their particular species. They do not possess individuality, but rather, exist in a generality. This is why it is often said of a person who has done something particularly cruel – “he / she is cold blooded” or “the murder was committed in cold blood” or “he / she is a snake in the grass.” The reptilian complex – associated with the brain stem, has its own efficiency. It regulates respiration; it digests food; it makes the heart beat. It enables us to react swiftly to real or imagined threats. But, it does not feel. The mammalian brain, younger by several hundred million years to the reptilian, has well developed emotions. Fear, love, hatred, jealousy, rage are part of its workings. Desires motivate behaviour of mammals; desire to nurture or be nurtured; desire for sex; for power; for domination or submission; desire to protect one’s own territory; the herd instinct with all its emotional power plays are very much mammalian instincts. “Faithful as a dog”; “brave as a lion” (lion-hearted); cunning as a fox; strong as an elephant are common expressions of the character traits of various animals. The fierce protective maternal love of animals is well known, as is the male’s jealousy of anyone who dares encroach his sexual territory. Animals die in battles over territorial dominance. These are all emotions and desires which rage in the animal brain. At that level of evolution, all these drives are necessary to keep the genetic flow moving from one generation of the organism to the next. Survival tactics: Nature’s way of ensuring that “life goes on” by providing an



autonomic motivating power.

Animals are prisoners of their genes. They are incarnated into a conditioned, stimulus – response programming and they have no choice, but to follow their instincts.

Man, the New Being, the first “Conscious Organism” has the power of choice. He / she may now act, and choose, rather than re-act. The human has the power to think, to recall past situations and compare them to the present reality. Man has the power of reason which frees him from the instinctive responses to challenge which is the mode of behaviour of the reptilian and mammalian kingdom. But the power of the unconscious emotions and instincts rising from the “Old Brain” in a kind of “evolutionary lag” sometimes overpowers the “Rational Brain” and causes “The New Being” to react in an “irrational manner.” Man as a social, conscious being has lifted himself from the jungle environment with its moment to moment dangers and constant life – and – death challenges. He no longer faces challenges to his very survival on a constant basis. His life is relatively secure on the physical level (barring wars and other unusual circumstance). Yet, his “Old Brain” is hard wired to react as though every threat (physical or psychological) is a life – and – death matter. Hence, even psychological challenges, or innocuous frictions trigger off “Old Brain” extreme responses, especially on the emotional level.

Many old desires and instincts still exist in a subtle level – sexual rivalry, power struggles, territorial conflicts – the only difference being that the “animal in us” now wears a coat and tie and stands on two legs.

These concepts may be elaborated. At present it is enough to simply point out that often in

human relationships and in other situations, the old animal and reptilian autonomic responses and reactions cloud the “human” or conscious perception. The “Old Brain” reacts out of conditioning. It is heavily “loaded” with emotions which are part of the mammalian complex, and hence, “unconscious.” The “New Brain” has the power “to act” after considering the reality of the present situation, and using discrimination, rationality and deliberation to choose consciously its actions in any given circumstances.

This ‘power of choice’ is concomitant to “consciousness.” The animal – reptile is not “free” to choose – it is bound by the noose (*Pasa*) of its conditioned stimulus – response mechanism. If it is threatened, it will flee or fight. These are the only options open to it.

**This power to reflect, to see the situation in the present moment freed of all past conditioning, and then to consciously choose the appropriate response is the essence of Yama – Niyama, the Moral and Ethical System on which Ashtanga Yoga is based.**

Maharishi Patanjali rightly puts *Yama* and *Niyama* as the first of eight steps on the ladder of conscious evolution of Ashtanga Yoga. Without perfection in this aspect of human life, he says, conscious evolution is not possible. He codifies Yama into five basic principles: *Ahimsa* – nonviolence; *Asteya* – non-stealing; *Satya* – Truthfulness; *Brahmacharya* – control of sexual urge. *Aparigraha* – non greed. One can summarize the five *Yamas* in a succinct manner “*Yama*” means “restraint”, restraint of the animal – reptilian – “Old Brain instincts” at all levels, both gross and subtle.

Non-harmfulness, non-stealing, control of sexual urge, non-greed and seeing the “truth” or

“Reality” without the obscuration of dim animal – based perception strikes at the core root of animal – reptilian instincts and roots them out of the human nature.

Niyama, the second stage of Ashtanga Yoga includes *Saucha*, cleanliness; *Santhosha* – Contentment; *Tapa* – austerities, discipline; *Swadhyaya* – Self-study *Ishwara Pranidhana* – Submission to the Cosmic Will or obedience to Cosmic Law. *Niyama* may be succinctly summarized as practices, which “cultivate the Higher Nature”, the humane nature, the Divine Nature. *Niyama* or observances Nurture consciousness.

*Yama*, thus, is restraint of the instincts and impulses rising from the “Old Brain.” *Yama* is the control of the unconsciousness. *Niyama* is reinforcing through various practices and observances the higher consciousness, the light, the divine characteristics which will hasten one’s evolution into more advanced states of being. *Niyama* is the cultivation of consciousness.

*Swadhyaya* – the Fourth Niyama – Self-Study – is also the process of examining the primordial conditioning of our “Old Brain” and recognizing these ancient impulses in their modern clothing – irrational fears of abandonment, fear of strangers, projection of bad experiences with a particular type of person (say, a blond boy friend) onto all blond men; generalizing all people into categories of whether they can satisfy particular needs (like sex, nurturing, power fulfillments) etc or not. Seeing the world and the people around us as “unchanging”, not

viewing them as they actually are. So many emotional problems rise because of this evolutionary lag between the “Old Brain” and the “New Brain.”

Hence, the *Yama* and *Niyama* are “no-option Yoga.” We have no choice. If we want to grow, to evolve out of our reptilian – mammalian past into the truly human, Divine Nature, we must restrain the primordial instincts (*Yama*) and consciously reinforce our Divine Nature (awareness and consciousness) with the observances and practice of *Niyama*.

The *Yama* and *Niyama* are the necessary principles to be studied, reflected upon and adhered to as part of the evolutionary development of the human brain. The restraints and observance purify and refine the brain structure, making it a fit instrument, capable of “tuning into Cosmic Consciousness.” Eventually this “purified brain” will refine itself sufficiently to merge the individuality (*Jiva*) with the Universality (*Paramatma*) – the goal of Yoga (Union).

The long evolutionary meandering through the flesh of 8,400,000 incarnations can thus be shortened. One may rise out of the blind bestial passions in the darkness of unconscious ignorance to the radiant Divine Consciousness of a truly Enlightened Being. The long journey is shortened, and the goal, so long distant, becomes a living reality. The dewdrop slips into the shining sea! The “devil” is vanquished by the *Deva*. The beast becomes the beauty. The old, old story has a happy ending!

## YOGA AND VALUE EDUCATION

Dr. R.K. Bodhe

**E**ducation, which is expected to take care of all the dimensions of human personality, has for some reasons or others, become information and examination oriented. The affective dimension i.e. the education of emotions, attitudes, values, habits, spirituality, heightening of person's awareness of oneself, of one's relationship with others and the outside world etc. has been receiving very meager attention in our education. Further education is expected to foster universal and internal values oriented towards the unity and integration of our people. It should eliminate obscurantism, religious fanaticism, violence, superstition, fatalism. Besides this combative role education has a profound positive content (National Policy on Education - 1986). This has caused a great concern among the educationist who have recommended, through different Committees and Commissions, the immediate need of internalization on the part of learners / students, of the following values, out looks through our education.

National Policy on education notes that there exists a schism between the formal system of education and our rich and varied cultural tradition. This has been reflected through recommendations from various Committees and Commissions appointed by Government.

These recommendations are:

- That without an **ethical basis** any curricula would be barren (Sergeant Committee - 1944).

- That **spiritual and moral teaching** which are common to all religions, must be an integral part of curriculum (Religious Education Committee of The Central Advisory Board Of Education - 1945).
- The need to **incorporate spiritual training** in the curriculum of educational institutions (Radha Krishnan Commission - 1948-49).
- **Growth of character of students** would depend on religious and moral instruction (The Mudaliar Commission - 1952-53).
- **Stress on moral education and inculcation of a sense of social responsibility** in students (Kothari Committee - 1964-66).
- The education in India stands at crossroads. Education has an acculturating role and it refines sensitivities that contribute to national cohesion, scientific temper and independence of mind and spirit. It is also recommended - '**conscious internalization of a healthy work ethos**' (National Policy on Education - 1986).
- That education must nurture a set of **values like love and compassion, build up a new social order based on truth and non-violence** and prepare the ground for integration between science (truth), spirituality (unity of life) and democracy which is the link between the two (The Ramamurthy Committee - 1990).

If we observe closely we will find that these recommendations consist of five basic human

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values: truth, righteousness, peace and non-violence. Out of these, Truth is related with pursuit of knowledge requiring spirit of enquiry, discrimination, open mindedness, respect of all religions etc (Jnanayoga). Righteousness is related with action rather right action requiring the observance of dignity of labour, proper time management self help, self reliance, honesty etc (Karmayoga).

### Yogic Potentialities towards the realization of value educational objectives:

In order to take care of neglected dimension of education i.e. the affective dimension concerned with the development of feelings, values, attitudes, character and to try to implement through yoga the recommendations from various Committees and Commissions, in this paper, different forms of yoga have been identified which are representative of cognitive, conative and affective dimensions of human personality. And they are Jnanayoga, Karmayoga and Bhaktiyoga. Maharshi Patanjali very succinctly subsumes these three under Kriyayoga which is said to purport the attenuation of kleshas and the attainment of samadhi which has a close concurrence with the dual function of education - help eliminate obscurantism... etc and spreading of positive content - conceived by National Policy on Education (NPE) 1986. In other words, what is suggested is that the education in Kriyayoga can well take care of education in not only affective dimension of human personality but also of other dimensions related with the pursuit of knowledge (Jnanayoga) and the development of healthy work ethos (Karmayoga).

Now it is interesting to note that there are various yogic practices like asanas etc. the practice of which can help us build and develop

our Kriyayoga and inturn one's Jnanayoga, Karmayoga and Bhaktiyoga which cumulatively lead towards the holistic development of the personality - the essentially sought after aim of education. But before going further to vindicate this contention it should be borne in mind that 'asanas' as conceived in yoga are more than just physical postures. They are states of experiences and consciousness. In fact these physical postures become 'yogic' asanas only when they lead to and aim at particular states of emotions and consciousness. Thus the simple looking physical postures such as standing, forward bending, backward bending, topsy turvey pose, lateral bending, twisting and balancing etc can be insightfully made use of in building one's Kriyayoga which is very much needed for overcoming the crises in our educational system. Let us briefly discuss these potentialities of developing the above stated forms of yoga through the performances of asanas and other yogic practices. In fact, for our purpose, these can be treated as simply platform or necessary ground for the pursuit of knowledge, developing healthy work ethos and the education of emotions. Much will depend on yoga teachers themselves as to how to intelligently employ the yogic precepts and practices towards the realization of educational objectives that hold the society together.

Here are a few representative examples of asanas that can be made use of in developing and fostering these forms of yoga and consequently helping to the development of affective dimensions of education.

#### 1. Jnanayoga

Svadhyaya in Kriyayoga is related with Jnanayoga. Knowledge whether pursued in empirical or transcendental sense (here we are

concern with Aparavidya) needs among very many other things the development of critical abilities, open mindedness, discrimination between right and wrong, good and bad, ability to think about and see the reality from different points of views, reversal of perspective when existing perspective does not yield expected results and so on. Among other things, Jnanayoga consists of all these things to experience which occasions can be provided to the learners through such yogic practices as Viparit Karni/ Shoulder stand/ Head stand and Brahmamudra - to mention a few. For, the Viparit Karni symbolizes man's setting aside old, immobile, outdated, non-conducive and negative ways of life, values, attitudes and seeing (darshana) the reality with the different perspective which will be more wider, more balanced, more positive and critical and constructive. This is what is suggested by Patanjali in his Yoga Sutras "Vitarka badhane pratipaksha bhavanam" (PYS II/33). Further, yoga should be practiced for addressing social reality if we were to overcome the crises in education and widen the range of applicability of yoga.

Similarly Brahma mudra does not simply stands for neck movements from which there are, no doubt, benefits on physical level but it has more wider/deeper significance and import which need to be highlighted while imparting lessons in yogic practices. Unfortunately yoga teachers get stuck only at the Annamaya kosha (Physical gross level) of yoga education in general and Asana education in particular. Brahma is Truth/ Reality and let its awareness come from all the sides - North, East, West, South, from above and below. We must be open and sensitive to it if we were to educate ourselves. These are the educational implications of the yogic asanas that

need to be incorporated (of course innovatively) in developing the learners in their Jnanayoga. Here one more thing that should be born in mind and that is - Yoga does not give us knowledge but it gives us ability to acquire knowledge.

## 2. Karmayoga

As has been seen above one of the educational needs that has been recommended by NPE - 1986 is the **conscious internalization of the healthy work ethos**. It includes among other things, development of a sense of duty both individual and social, dignity of labor, love for hard work (tapa- the first member of Kriyayoga). All this is very much necessary for a developing nation like ours. Today's child eschews from physical hard work, from performing one's works, from self reliance, from taking pain.

Love for one's own work involves punctuality, regularity, orderliness, awareness of the work target (Dhanurasana), besides ability to take part in team work, experiencing work satisfaction etc. These are necessary for healthy work ethos i.e. for Karmayoga. Such an awareness can be fostered among the learners through such asanas as Halasana, Dhanurasana etc. by incorporating these value concerns during asana teachings by the yoga teacher. You are the plougher of your own destiny and personality (Kshetra - field). While instructing in these asanas the learners can be invited for self reflection (svadhyaya) upon such questions as:

"Do I love my work?" (Ploughing is hard work).

"Am I working just to show others?"

"Whether my work is based on necessary knowledge and truth?" (Jnanayoga and satya)

"Am I working for my sake only?" (Svartha)

“Am I aware of social responsibility?” (Parartha)

“Do I see that I complete my work?”

“Do I work for ego satisfaction?” and so on.

In fact Karmayoga needs the awareness of all these things which can be given by yoga teachers on the occasion of Halasana experiences. Halasana stands for culturing, it symbolizes a methodology, it is nurturing, educating, refining one's personality. It is only when these insights are incorporated yoga can be a skill in action - yogah karmasu kaushalam!

### 3. Bhaktiyoga

In Kriyayoga, this is related with Ishwar pranidhan - surrender to Lord. Surrender, dedication, will power, commitment, emotional balance, education of emotions and attitudes and habits etc. though may appear different but are synonymous with each other and are essential for the attainment of success in any walk of life. All the forward bending asanas are the symbolic of man's surrender and dedication to a great cause. Pranidhan signifies our total surrender, commitment and dedication to what we consider worthy and worth achieving. Man's commitment and strong will is what is required for the materialization of his plans. In forward bending we totally surrender.

There is another aspect / dimension of Bhaktiyoga and that is balanced ness in one's emotions. This balanced ness, the investment of the emotions, is reflected in and through everyday matters such as balance between materiality and spirituality, control over emotions and rage, a well developed sense of hierarchy and priority among values, in distinguishing between lower and higher values and in spending one's energy in a more balanced

and more creative way etc. All these are the instances of education of emotions and balanced ness which will help in avoiding or resolving conflicts between desires/ values pulling one in different directions. It is helpful in overcoming the gap between values cherished and values practiced and also overcoming the sufferings from guilt feelings and pangs of consciousness.

Thus the notion of dedication and balanced ness with reference to emotions have several shades and applications and experience of which can be provided through forward bending and balancing asanas. This is the import of “Yogah samatvam uchyate” i.e. Yoga is balanced!

Education in all these dimensions is necessary for all round development of human personality which can be achieved through Kriyayoga. However there is a need on the part of yoga teachers of widening the range of applicability of yoga in such a way that not only the psychosomatic personality is subjected to yogic treatment but also such social aspects as education.

Overcoming the crises in education can be accomplished through other means too. But yoga being practical and holistic way of life, more close to nature, without any side effects having low cost efficiency it deserves universal acceptance transcending cultural and spatio-temporal boundaries.

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## YOGA AS TREATMENT FOR CHRONIC PAIN CONDITIONS: A LITERATURE REVIEW

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### ABSTRACT

*Yoga is a popular modality of complementary and alternative medicine (CAM), and yet a relatively small body of literature examines the efficacy of yoga in addressing health problems. This review details the existing studies on yoga for chronic health conditions associated with pain in individuals across the lifespan. Overall, there is compelling preliminary evidence about the beneficial aspects of yoga in addressing a variety of pain conditions including osteoarthritis, back pain, headaches, and irritable bowel syndrome. Problematic to the literature as a body is the lack of detail offered by most researchers about the branch of yoga chosen, the specific postures employed, and the qualifications of yoga teachers in these studies. Also of issue is the typically small sample size as well as an absence of theoretical models to inform interventions and assessments. These shortcomings have conceivably impeded greater wide-scale replication and dissemination of yoga programs for health conditions. Yoga offers a relatively low-cost and easily accessible CAM intervention for people with chronic pain conditions, and would likely be of public health benefit if it were studied more rigorously in the future.*

Recent surveys point to the increasing popularity of complementary and alternative medicine (CAM) (Barnes, 2004), particularly for chronic health and pain conditions that may not respond well to conventional medicine. This increase in CAM use is evident in adult as well as pediatric populations (Tsao, & Zeltzer, 2005). Yoga is among one of the more popular CAM treatments, and estimates suggested that

approximately 5% of adults in the US practice yoga (Barnes, 2004). A recent study of CAM preferences for children aged 8-18 years with chronic pain found yoga to be amongst the top three CAM treatments (Tsao et al., 2007). Despite its popularity, limited research has explored the empirical efficacy of yoga as a treatment for chronic pain conditions. This review examines the extant literature that does so, and includes studies on yoga and any chronic

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health condition associated with pain in individuals across the lifespan.

Yoga developed in ancient India incorporating and uniting principles of posture, breathing, and meditation that are thought to bring physiological and psychological benefits to its practitioners. Characterized as a science of self-development through a series of specific asanas (body postures), pranayama (proscribed patterns of breathing), and meditation, yoga has been embraced in modern Western settings as a form of exercise and a technique for relaxation/stress reduction. Currently, yoga programs are relatively low cost and widely available to the public in the form of classes or at home video/book programs. When performed properly, little risk of adverse effects appear to exist. Nevertheless, there is a dearth of empirical research on the specific effects of yoga for chronic pain conditions.

Yoga, as a discipline, is divided into many branches. Traditionally Hatha yoga refers to the eight limbs of yoga, but is often used to describe yoga practices that deal with the physical body, and emphasize asana and pranayama. Hatha yoga consists of numerous styles, and some are more suited to the safe treatment of chronic conditions. Iyengar yoga is frequently used in studies of yoga for chronic pain. This tradition emphasizes precision in performing poses and individualizes the practice to each participant's ability and mobility level through the use of props, including blocks, straps and cushions. Iyengar instructors are required to complete extensive training and certification processes. Because the poses are precise, Iyengar interventions, if detailed appropriately, can be widely and accurately replicated. Hatha yoga styles are varied and the existence of many traditions can create difficulties in standardizing

treatment without detailed information about the type of yoga and specific practice employed in studies.

## Methods

The effectiveness of search strategies to identify trials using CAM appears to be contingent on the number of databases searched; a variety of different sources are required to identify relevant articles (Pilkington, 2007). Accordingly, the PubMed, PsychInfo, CINAHL and Cochrane Library databases were searched up to November 2007 using the keywords: 'yoga' 'health' and 'pain.' The focus of this article is to provide an overview of data that has been published in peer-reviewed journals regarding yoga treatments for chronic pain. Due to the limited research available, studies were included if they involved randomized controlled trials (RCTs) or repeated measures without a control group (RM) designs. A number of yoga articles have been published in Indian journals, and despite not being widely circulated, where possible these articles were retrieved and included in the analyses. Examination of the literature revealed three main pain conditions that have been treated with yoga. As grouped below, these conditions included musculoskeletal pain, headache/migraines and irritable bowel syndrome. Results of the studies are presented in tables 1-3.

## Yoga for musculoskeletal conditions

A number of studies have examined the impact of yoga on musculoskeletal conditions and in particular, various forms of arthritis. Most studies have focused on older populations, with few including children, adolescents, or young adults. One study in rheumatoid arthritis (RA) patients did include adolescents and young



Table 1: Studies examining yoga for musculo-skeletal pain.

Study	Pain	Design	Yoga	Participants	Outcome Measures	Significant Findings
Garfinkel, et al (1994)	Osteoarthritis of the hands	RCT Wait-list controls	60-min weekly Iyengar yoga sessn for 8 wks	Yoga (14) Controls (11) Age 52-79 y	Pain, strength, motion, joint circumference, tenderness, hand function	Yoga group improved more than control group in pain, tenderness and finger range of motion
Haslock et al (1994)	Rheumatoid arthritis	CT Standard treatment controls	2-hr session 5 d/wk for 3 wks, followed by wldy 2-hr sessions- 3m	Yoga (10) Controls (10) Age 15-72 y	Ring size, stiffness, grip strength Health Assessment Questionnaire General Health Questionnaire	Yoga group improved more than control group in hand grip strength
Garfinkel et al (1998)	Carpal tunnel synd	RCT Standard treatment control	60-90 min biweekly Iyengar Yoga for 8 wks	Yoga (20) Controls (22) Age 24-77	Grip strength, pain intensity, sleep Phalen sign, Tinel sign, median nerve motor, sensory conduction time	Yoga improved over controls in Phalen sign; post-study yoga improved grip strength and pain
Dash & Telles (2001)	Rheumatoid arthritis	CT	60-min daily (camp w postures, pranayama) RA patients = 15 d	adults (37) kids (86) Patients (20) Equal n controls women	Hand grip strength	Both hands- grip strength improved in yoga groups compared to controls; greater improvement in
Greendale, (2002)	Hyperkyphosis	Repeated Measures	1 hr biweekly Hatha Yoga for 12 wks	21 women Age > 60 y	Anthropomorphic and performance indicators	Increased strength and flexibility and heightened attention to alignment
Galandino et al (2004)	Chronic low back pain	RCT Wait-list controls	60-minute biweekly Hatha yoga for 6 wks	Yoga (11) Controls (11) Age 30-65 y	Oswestry Disability Index, BD, Sit and Reach Test (SR), Functional Reach Test (FRT), Profile of Mood States, State-Trait	Trends showing improved balance, flexibility, disability and depression. n
Oken, et al. (2004)	Multiple Sclerosis	RCT 1. Exercise controls 2. Wait list controls	90-min weekly Iyengar yoga for 26 wks	Yoga (22) 1. controls (15) 2. controls (20) Age 37-58 y	Anxiety Inventory, Multi-Dimensional Fatigue Inventory, SF-36	Yoga group reported relaxation improvement in fatigue compared with control group
DiBenedetto et al (2005)	Stiffness in healthy adults	Repeated measures	90-min biweekly Iyengar yoga for 8 wks	n = 23 (19 completed) Age 62-83 y	Peak hip extension, anterior pelvic tilt, stride length at walking speed.	Peak hip extension and stride length increased
Kolasinski, et al (2005)	Osteoarthritis of the knee	Repeated measures	90 min Iyengar Yoga once weekly for 8 wks Walk Time	n = 11 (7 completed) Age >50 ys	WOMAC, AIMS2, Patient Global Assessment, 50-foot	Reductions in pain, physical functioning, arthritis impact
Sherman et al (2005)	Chronic low back pain	RCT 1. Exercise controls 2. Self care book	75-minute weekly Vinyoga for 12 weeks	Yoga (36) 1. controls (33) 2. controls (30) Age 27-57 y	SF-36, Roland Disability Scale, days of restricted activity, medication use	Yoga improved functioning compared to post- yoga improved both someness & functioning compared to book controls
Williams et al (2005)	Non-specific chronic low back pain	RCT Educational controls	90-min Iyengar Yoga once weekly for 16 wks	Yoga (30) Controls (30) Age 23-67 y	BPSES, PDI, SF-MPG, Attitudes, CSQR, Tampa Scale of Kinesiophobia, Survey of Pain	Yoga improved functional and medical outcomes compared to controls, post-study yoga reductions in pain, functional disability and pain medication

Table 2: Studies examining yoga for migraines/headaches.

Study	Pain	Design	Yoga	Participants	Outcome Measures	Significant Finding
Kaliappan & Kaliappan (1992)	Migraine	RCT Std treatment controls	16 weeks	Yoga (n=10) Control group (n=10) Age 16-55 years	Headache activity, source of stress, coping patterns,	Improved post-study headaches, medication use, perceived stress and coping for yoga group
John et al (2007)	Migraine without aura	RCT Self-care controls	Yoga (n=32) Control (n=33)	60-minute (asana, pranayama, Kriya) 5 times/wk for 12wks Age 24-44 years	Headache frequency diary, severity (numerical scale), McGill Pain Questionnaire, HADS compared to controls	Yoga group improved headache intensity, frequency, pain, McGill, HADS and medication

Table 3: Studies examination yoga for irritable bowel syndrome.

Study	Pain	Design	Yoga	Participants Groups	Outcome Measures	Significant Findings
Taneja et al (2004)	Irritable bowel syndrome	RCT Std treatment controls for 8 wks	Twice daily (fixed series of postures)	Yoga (9) Control (11) Age 20-50 y	Bowel symptoms, autonomic symptoms, parasympathetic reactivity, STAI	Both groups decrease in bowel movements and anxiety; enhanced stress responses in yoga group compared with controls.
Kuttner et al (2006)	Irritable bowel syndrome	RCT Wait-list controls	60-min instr.session + 4 wks home with videowith video	Yoga (14) Control (11) Age 11-18 y	Pain intensity, gastro symptoms, Functional Disability Inventory, PCQ, RCMAS, CDI-Short Form	Yoga improved disability, coping & anxiety compared with controls; Improved post-study gastro symptoms and coping for yoga group

adults but the age range was so broad that extrapolating the findings to specific populations is difficult (Haslock et al., 1994). Despite the small number of participants in this study (n = 10), in each of the yoga and control groups, yoga was found to improve hand grip strength significantly. Hand grip strength was also significantly improved in 20 RA patients following yoga training compared with controls (Dash & Telles, 2001). Garfinkel and colleagues tested Iyengar yoga for patients with osteoarthritis of the hands (Garfinkel, et al., 1994) and carpal tunnel syndrome (Garfinkel et al., 1998). Both studies resulted in the amelioration of pain and improved mobility. The efficacy of Iyengar yoga for osteoarthritis has further been demonstrated by Kolasinski et al (Kolasinski et al., 2005), who found reductions in pain, physical functioning, and arthritis impact in a group of patients with osteoarthritis of the knee. That these studies have included limited sample sizes (as small as seven) yet still found beneficial effects of yoga provides support for the efficacy of yoga for arthritis.

Increased strength and flexibility is a recurrent finding across musculoskeletal conditions;

improvements in strength and flexibility have also been reported in a study of yoga for older women with hyperkyphosis (colloquially known as “dowager’s hump”) (Greendale et al., 2002). In a general sample of older adults with age-related stiffness, Iyengar yoga was found to increase hip extension and stride length, further indicating the flexibility benefits of yoga. These studies used repeated measures designs with benefits reported post-treatment versus pre-treatment. The lack of randomization or controls limits the strength of the findings. It is questionable whether yoga induced improvement or the mere presence of treatment led to increased functioning.

Studies using RCTs have been reported for multiple sclerosis and chronic back pain. Oken et al conducted an Iyengar yoga intervention for a largely female multiple sclerosis patient population. Although the yoga group showed significantly improved fatigue compared with the wait-list controls, the differences between the yoga intervention and an exercise intervention were limited, and no differences were found on mood or cognitive functioning measures. Possibly the condition of the patients

deteriorated substantially over the course of the study, which at 6 months is a great deal longer than most other yoga interventions. Health status and disease progression were not controlled in the study. Nevertheless, the findings indicate that yoga is at least as effective as exercise in managing the fatigue of MS, a progressive disease.

A series of RCTs for chronic low back pain revealed mixed results. A six-week hatha yoga class for patients reported non-significant trends toward improved physical and psychological functioning for the yoga group (n = 10) compared with a waitlist control (n = 10) (Galantino et al., 2004). The small sample size and relatively short treatment program may have limited the power to detect significant changes. These null findings can be contrasted with two further studies indicating the benefits of yoga for chronic back pain. In 101 patients, a course of viniyoga yoga led to an improved back-related functioning compared with an exercise control group and an education group. At 26 weeks post-intervention, the yoga group further demonstrated improved pain levels and functioning compared with the education group (Sherman, et al., 2005). Other positive findings were reported for a similar large group of chronic low back pain patients (Williams et al., 2005). The study found that compared with a control group receiving educational materials on back care, significant improvements occurred in functional and medical outcomes for patients practicing Iyengar yoga. Over half the patients experienced significant reduction in pain, over three-quarters reported improved functionality, and nearly 90% reduced pain medication usage. The latter two studies represent some of the largest RCTs of yoga for chronic pain conditions and provide compelling

initial support for the efficacy of yoga in treating chronic low back pain.

### Yoga for headache/migraine

Two RCTs have shown that yoga alleviates the physical and psychological aspects of migraine/headache pain by improving pain severity and psychological functioning and reducing medication use (Kaliappan, 1992) (John et al., 2007). The first of these studies, conducted by Kaliappan and Kaliappan (1992) was limited by a small sample, a heterogeneous group of 'headache' sufferers that included tension headaches and migraines, an absence of standardized pain and stress questionnaires, and a lack of description regarding the yoga practice used. The results are still promising and point to the possible role of yoga as a stress reduction technique and an adaptive coping response in alleviating pain.

A larger yoga study conducted for treatment of migraine without aura showed positive benefits (John et al., 2007). Seventy-two patients were randomized to an educational control group or to a yoga treatment the authors termed 'yoga therapy' that combined asanas, pranayama, and kriya, a nasal water cleansing process. After the 3-month intervention, patients in the yoga group reported significant reductions in subscales of the McGill pain questionnaire (frequency, intensity, and sensitivity of pain, an anxiety and depression scale, and medication use compared with controls). The findings support the role of yoga for alleviating the physical and psychological aspects of migraine pain. Nevertheless, which aspects of the yoga therapy were responsible for the improvement or whether such a combined approach is superior to standard yoga involving only pranayama and/or asanas is not known.

### Yoga for irritable bowel syndrome

Positive effects have also been found for yoga in irritable bowel syndrome (IBS).. Kuttner et al (2006) provided the only systematic analysis of the use of yoga for pain conditions in children and adolescents (i.e., aged 11-18 years). This limited intervention consisted of a 4-week home practice of yoga, subsequent to an initial training session. To what degree participants actually practiced yoga and to what extent they adhered to the prescribed yoga protocol is unclear. Although the intervention is described as Iyengar yoga, whether a formally trained Iyengar yoga teacher was involved in the intervention and whether the poses taught to children were legitimate Iyengar asanas is unknown. Despite these limitations, Kuttner et al found that the yoga group exhibited significantly improved post-study IBS symptoms and significantly improved disability, coping, and anxiety relative to waitlist controls.

In an RCT using yoga for IBS symptoms and functioning, Taneja and colleagues (2004) found improved parasympathetic reactivity in a group undergoing biweekly yoga classes for 8 weeks compared with standard treatment controls. One strength of the study was a description of the specific yoga asanas and pranayama used, allowing for replication and critique of the intervention. Both groups improved equally on decreasing bowel movements and anxiety, indicating limited additional benefits for yoga over standard intervention. The yoga group, however, showed significantly decreased autonomic system responses and increased parasympathetic reactivity when compared with controls at the end of the second month of yoga, indicating a decrease in stress responses. Limiting the study is a minimal sample size (n = 9 for the yoga group) and abbreviated health

and functioning assessments. Possibly an increase in the study's power may have resulted in notable differences between the groups.

### Discussion

Of the 15 studies reviewed, only one study on chronic pain failed to find significant improvement after a yoga intervention (Galantino et al., 2004). This trial tested a 6-week yoga practice for chronic low back pain and reported non-significant trends in the yoga group (Galantino et al., 2004). These null findings underscore the importance of an appropriate sample size (the yoga group included only 11 patients) and a sufficient length of treatment to induce change. A further limitation relevant to all yoga studies is the lack of a realistic placebo group. Given the scientific, practical, and ethical difficulty in developing a legitimate sham yoga group, studies generally use a standard treatment or waitlist control group. It is possible that improvements across studies are the result of patient expectations. Nevertheless, many studies used prior experience with yoga or meditation as exclusion criteria, thus reducing the likelihood of including patients who have strong positive feelings towards yoga.

Among the most important limitations of the existing work on chronic pain and yoga are the

- (1) inadequate sample size for most of the studies;
- (2) overly broad age range (e.g., inclusion of adolescents and elderly patients in the same sample);
- (3) lack of specification regarding the yoga school utilized in most studies; and

- (4) lack of a theoretical model to inform treatment implementation and assessment of outcomes.

As a great variation is found across the numerous traditions of yoga, this lack of standardization can confound interpretations of the overall efficacy of yoga on illness states. Without a clear description of the yoga tradition and the specific yoga poses used, further research designed to replicate the findings is difficult. We argue that future yoga research should include not only a clear indication of which specific tradition of yoga the intervention follows (i.e., Iyengar yoga, viniyoga) but also a detailed description of the poses incorporated into the program. This approach will afford greater understanding of which asanas are most beneficial for which conditions and will allow other interventions to replicate benefits. Another important dimension that has to be detailed better in studies of yoga efficacy for health conditions is that of teacher qualifications. Certain forms of yoga, such as Iyengar yoga, require extensive training and accreditation. Background information regarding the teachers' credentials is key to ensuring the validity and reliability of the yoga intervention.

### Conclusion

Yoga research suggests that such training benefits pain patients when they follow a program of yoga. Although the improvements on physical symptoms are relatively consistent (e.g., pain intensity, strength, medication use), improvements on psychological functioning scores for pain groups are not as consistent. That said, this result could be a function of the kinds of poses utilized. Other studies looking specifically at psychological functioning and

yoga (Woolery, Myers, Sternlieb, & Zeltzer, 2004) demonstrated significant improvements in their population, and the poses in these studies were intended for improved psychological functioning. Possibly, the poses designed specifically for physical and psychological functioning should be implemented if interventions intend to address the entire functioning of the patient.

Generally, yoga is considered a safe practice and one with few dangers to people with health conditions. This aspect has not been rigorously explored, however, and more work is needed in this area to ensure that yoga interventions are indeed safe for a variety of patients. Further large scale RCTs designed to address the safety and efficacy of yoga for health conditions are clearly required before definitive conclusions can be drawn regarding the use of yoga to improve pain and functioning. During the design stage, future studies should also be mindful of employing yoga traditions that involve substantial training in therapeutics. At the least, studies should provide details regarding the yoga tradition and background of teachers used.

At this stage, yoga represents a promising intervention. The practice is low-cost, easily accessible, and poses few, if any, hazards to people with health conditions. As the public is becoming increasingly interested in the use of CAM (Barnes, 2002), the popularity of yoga is likely to continue to grow. Further research is needed to inform health care practitioners regarding the safety and efficacy of yoga for their patients with pain.

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## नाड़ी तंत्र एक परिचय

परमहंस स्वामी अनन्त भारती

**यो**ग साधना की प्रायः सभी परम्पराओं में प्राणायाम साधना को महत्त्वपूर्ण स्थान दिया गया है। योग सूत्रों के रचयिता महर्षि पतञ्जलि ने इसे संगम साधना अर्थात् धारणा ध्यान और समाधि का प्रवेश द्वारा स्वीकार किया है।<sup>1</sup> हठयोग के ग्रन्थों में सूर्य भेद उज्जायी शीतली आदि प्राणायामों को विविध रोगों का निवारक स्वीकार किया गया है।<sup>2</sup> दत्तात्रेय योगशास्त्र में प्राणायाम को कुण्डलिनी जागरण (केवल कुम्भक) का हेतु माना गया है। इस स्थिति में पहुंचने पर योगी के लिए कुछ भी दुर्लभ नहीं रहता, शरीर लघुता दीप्ति जठराग्नि का तीव्र होना मोटापा दूर होना ये सब तो इसके पूर्व ही प्राप्त हो जाते हैं।<sup>3</sup> इसी ग्रन्थ में भ्रूमध्य के ऊपर वायु धारण रूप प्राणायाम को मृत्यु पर विजयी दिलाने वाला माना गया है।<sup>4</sup> श्रीमद्भागवत में प्राणायाम को इच्छामृत्यु प्रदान करने वाला बताया गया है।<sup>5</sup>

प्राणायाम के अनेक प्रकार हैं बौद्ध परम्परा में केवल रेचक पूरक करते हुए श्वास प्रश्वास को अवेक्षण किया जाता है। नाड़ी शोधन प्राणायाम में भी श्वास प्रश्वास के अवेक्षण पूर्वक रेचक पूरक और कुम्भक करने का निर्देश<sup>6</sup> किन्तु प्रारम्भिक अभ्यासी के लिए कुम्भक का अभ्यास नहीं कराया जाता। इस प्रकार रेचक पूरक और कुम्भक प्राणायाम की तीन मुख्य क्रियाएं हैं।<sup>7</sup> प्राणायाम का चतुर्थ प्रकार केवल कुम्भक है, जो ब्रह्म नाड़ी सुषुम्ना में प्राण के प्रवेश से प्रारम्भ होता है।<sup>8</sup> इसमें रेचक पूरक की आवश्यकता नहीं रह जाती किन्तु इसमें सिद्धि पाने के लिए

सहित कुम्भक का अभ्यास करना होता है। केवल कुम्भक के अभ्यास में सुषुम्ना नाड़ी के मुख पर जो कफ आदि मल है वे उसमें प्राण प्रवेश में बाधक तत्त्व हैं उसका निवारण प्राणायाम से ही होता है।<sup>9</sup> इस आधार पर यह कहा जा सकता है कि योग साधना में प्राणायाम मुख्य हैं और प्राणायाम में सिद्धि नाड़ी तंत्र को ज्ञान योग साधक के लिए आवश्यक माना गया है। वराह उपनिषद् में इस तथ्य को स्वीकार करते हुए कहा भी कहा है:

**रेचकः कुम्भकस्तद्द्वद् रेचकः पूरकः पुनः।**

**प्राणायामः स्वनाडीभिस्तस्मान्नाड़ीः प्रचक्षते।<sup>10</sup>**

अर्थात् रेचक पूरक कुम्भक पुनः रेचक इस प्रकार प्राणायाम निज नाड़ियों के द्वारा ही किया जाता है अतः नाड़ियों का वर्णन किया जा रहा है। वराह उपनिषद् के अनुसार प्रायः सब मनुष्यों का शरीर छियानवें अङ्गुल परिमाण का होता है उसके मध्य में मेढू और गुदा के मध्य में अण्डे की आकृति का कन्द स्थान है जो सभी नाड़ियों का उद्गम स्थान है।<sup>11</sup>

शरीर में नाड़ियों के दो वर्ग हैं रक्तवाहिनी नाड़ियां और चेतना वाहिनी नाड़ियां। इन दोनों के भी पुनः दो-दो प्रकार हैं प्रथम अर्थात् रक्तवाहिनी नाड़ियां हृदय से शरीर के सूक्ष्मतम अंश तक शुद्ध रक्त ले जाने वाली नाड़ियां और शरीर के सूक्ष्मतम अंश से फुस्फुस (फेफड़ों) तक शुद्धि के लिए अशुद्ध रक्त को ले जाने वाली नाड़ियां। इन्हें क्रमशः धमनी और

स्वामी केशवानन्द योग संस्थान, बी-2/139-140 सेक्टर-6, रोहिणी दिल्ली-110085



सिरा (हिरा) कहा जाता है। दूसरी अर्थात् चेतना वाहिनी नाड़ियां भी दो प्रकार हैं ज्ञान चेतना वाहिनी और क्रिया चेतना वाहिनी नाड़ियां। रक्तवाहिनी नाड़ियां चेतना वाहिनी नाड़ियों की अपेक्षा स्थूल हैं और इनका अध्ययन चिकित्सा विज्ञान की शाखा शरीर विज्ञान में किया जाता है। चेतना वाहिनी नाड़ियों की चर्चा योग के ग्रन्थों में ही उपलब्ध होती है। प्रस्तुत निबंध में इनके अध्ययन का ही प्रयत्न किया जा रहा है। इनकी कुल संख्या प्रायः बहत्तर हजार मानी जाती है। कठ और छान्दोग्य उपनिषदों में इनमें एक सौ एक नाड़ियों को मुख्य माना गया है।<sup>12</sup> योग चूडामणि आदि कुछ योगविषयक उपनिषदों में बहत्तर नाड़ियों को मुख्य स्वीकार किया गया है, यद्यपि इन एक सौ एक अथवा बहत्तर नाड़ियों की गणना इन उपर्युक्त उपनिषदों में नहीं की गयी है।<sup>13</sup> मुण्डक उपनिषद् के अनुसार इन सब नाड़ियों में ही प्राण (चेतना) का प्रवाह हुआ करता है।<sup>14</sup> इन नाड़ियों में भी कुछ उपनिषदों में चौदह नाड़ियों को और कुछ में दस को प्रधान माना गया है साथ ही इनके नामों में भी सर्वत्र एकरूपता नहीं है, जिनका विवरण नीचे की पंक्तियों में अंकित है।

शाण्डिल्य उपनिषद् में सुषुम्ना इडा पिङ्गला सरस्वती वारुणी पूषा हस्ति जिह्वा यशस्विनी कूहू शंखिनी पयस्विनी अलम्बुषा और गांधारी इन चौदह नाड़ियों को मुख्य माना गया है।<sup>15</sup> जाबालदर्शन उपनिषद् में भी यद्यपि चौदह ही मुख्य नाड़ियां स्वीकार की गयी हैं किन्तु उसमें पयस्विनी के स्थान पर तपस्विनी नाम प्राप्त होता है।<sup>16</sup> शाण्डिल्य उपनिषद् में मूलतः इन्हीं चौदह प्रधान नाड़ियों की गणना की है किन्तु उनके गन्तव्यों का विवरण देते हुए सौम्यानामक एक अन्य नाड़ी का नाम भी लिया है, जो पैर के अंगूठे तक जाती है।<sup>17</sup> वराह उपनिषद् में भी पूर्व परिमाण चौदह नाड़ियां ही स्वीकार की गयी हैं।<sup>18</sup> किन्तु वहीं पर

‘तत्रैव नाड़ी चक्रन्तुद्वादशरम्प्रतिष्ठितम्’<sup>19</sup> कहकर एक संदेह खड़ा कर दिया है कि वराह अरों में चौदह नाड़ियों की स्थिति (प्रारम्भिक स्थिति) कहां स्वीकार की जाए? इतना ही नहीं इसमें एक बार पुनः “प्रदक्षिण क्रमेणैव चक्रस्यारेषु नाडयः। वर्तन्ते द्वादशह्येताः द्वादशानिलवाहकाः कहा है।<sup>20</sup>” यह भी स्मरणीय है कि वायु प्राणों (वायु) की संख्या के सम्बन्ध में कोई विवाद नहीं है कि प्राण अपान समान उदार और व्यान पांच मुख्य प्राण और नागकूर्म कृकर देवदत्त और धनञ्जय पांच उपप्राण (वायु) इस प्रकार दश प्राण (वायु) स्वीकार किये जाते हैं इस स्थिति में यहां ‘द्वादशशानिलवाहकाः’ अर्थात् ‘वराह वायुओं के ले जाने वाला’ क्यों कहा गया है। यह भी स्मरणीय है कि इस उपनिषद् में स्वीकृत नाड़ियां निम्नलिखित हैं: सुषुम्ना अलम्बुषा कुहू वरुणा यशस्विनी पिङ्गला पूषा पयस्विनी सरस्वती, शंखिनी गांधारी इडा हस्ति-जिह्वा विश्वोदरी। योग शिखा उपनिषद् में शाण्डिल्य उपनिषद् में स्वीकृत यशस्विनी और पयस्विनी के स्थान पर विलम्बिनी और शूरानाम प्राप्त होता है और इनके अतिरिक्त क्षुधा को उत्पन्न करने वाली राका नाम की पन्द्रहवीं नाड़ी का भी उल्लेख मिलता है।<sup>21</sup>

ध्यान बिन्दु और योग चूडामणि उपनिषदों में सुषुम्ना इडा पिङ्गला पूषा हस्ति-जिह्वा यशस्विनी कुहू शंखिनी अलम्बुषा और गांधारी केवल इन दश नाड़ियों को मुख्य माना गया है।<sup>22</sup> जबकि त्रिशिखिब्राह्मण उपनिषद् में इन दश में कुहू और शंखिन की गणना न करके शुभा और कैशिकी दो अन्य नाम प्राप्त होते हैं इस प्रकार इसमें भी दश नाड़ियां ही मुख्य मानी गयी हैं।<sup>23</sup>

इस प्रकार हम देखते हैं कि किन्हीं आचार्यों ने चौदह नाड़ियों को किसी ने पन्द्रह को कुछ ने दश नाड़ियों को मुख्य माना है और इनमें एक रूपता भी नहीं है किन्तु सुषुम्ना इडा पिङ्गला पूषा हस्तिजिह्वा अलम्बुषा

और गांधारी को सबने ही स्वीकार किया है। इन नाड़ियों में सुषुम्ना को सबसे प्रधान मानते हुए इसे ब्रह्मनाडी के नाम से अभिहित किया गया है। त्रिशिखि ब्राह्मण उपनिषद् में इसे ब्रह्मनाड़ी के साथ ही वैष्णवी: विशेषण से विभूषित करते हुए इसे निर्वाण (मोक्ष) प्राप्ति का मार्ग माना गया है।<sup>24</sup>

उपर्युक्त उपनिषदों के अतिरिक्त वरिष्ठ संहिता में भी नाड़ियों का विवरण प्राप्त होता है। इसमें मध्य में सुषुम्ना और उसकी दाहिनी ओर पिङ्गला नाड़ी स्वीकार कर के सामने की ओर से गोलाद्ध में बढ़ते हुए यशस्विनी वारुणी कुहू (सामने) विश्वोदरा हस्तिजिह्वा इडा (वाम पार्श्व) गांधारी शंखिनी सरस्वती (ठीक पीछे), पयस्विनी और पूषा नाड़ियां स्वीकार की गयी है। इनके अतिरिक्त उसमें अलम्बुषा नाम से चौदहवीं नाड़ी भी मानी है जो नीचे की ओर तिरछी विद्यमान है।<sup>25</sup> वसिष्ठ संहिता में भी सुषुम्ना, जो कन्द मध्य से मेरुदण्ड के मध्य से मूर्धा (सहस्रार पद्म) तक जाती है, को मोक्ष मार्ग और वैष्णवी नाम से स्मरण किया गया है।<sup>26</sup>

इन प्रमुख नाड़ियों का उद्गम स्थान सर्वत्र कन्दस्थान ही माना गया है। नाड़ियों का केन्द्र होने के कारण ही उसे नाड़ी कन्द या नाभिकन्द भी कहते हैं। इन नाड़ियों के प्रारम्भ स्थल एवं गन्तव्य के सम्बन्ध में भी आचार्य एकमत नहीं है। सुषुम्ना कन्द मध्य से सहस्रार पद्म (ब्रह्मरन्ध्र-मूर्धा) पर्यन्त, इडा सुषुम्ना के वाम पार्श्व से बायी नासिका पर्यन्त, पिङ्गला सुषुम्ना के दक्षिण पार्श्व से दाहिनी नासिका के विवरतक पहुंचती है। और सरस्वती सुषुम्ना के पृष्ठ भाग से प्रारम्भ होकर मुख पर्यन्त जाती है इसमें प्रायः सभी एक मत हैं। वरुणा नाड़ी जिसे वसिष्ठ संहिता शाण्डिल्य और योग शिखोपनिषद् में वारुणी कहा गया है, सुषुम्ना नाड़ी के ठीक सामने स्थित कुहू के दक्षिण पार्श्व से प्रारम्भ होती है और शण्डिल्य

उपनिषद् के अनुसार यह कुण्डलिनी के नीचे ऊपर सर्वगामिनी है<sup>27</sup> जबकि योग शिखोपनिषद् के अनुसार यह मूत्र विसर्जन करती है।<sup>28</sup>

पूषा नाड़ी वसिष्ठ संहिता एवं वराह उपनिषद् के अनुसार पिङ्गला के पश्चिम पार्श्व से प्रारम्भ होती है और त्रिशिखि ब्राह्मण उपनिषद् के अनुसार सुषुम्ना के सामने से प्रारम्भ होकर बायें कान तक जाती है इसके विपरीत योग चूड़ामणि के अनुसार यह दाहिने कान तक जाती है। योग शिखा उपनिषद् में दक्षिण-वाम का उल्लेख न करके केवल कान तक जाने का संकेत हुआ है।<sup>29</sup>

हस्ति जिह्वा नाड़ी वराह उपनिषद् के अनुसार इडा के वाम पार्श्व प्रारम्भ होती है जबकि त्रिशिखि ब्राह्मणोपनिषद् में इसका उद्गम सुषुम्ना का पृष्ठ भाग कहा गया है। एवं यह दाहिने आंख तक जाती है। योग शिक्षा में दक्षिण वाम का भेदन करके केवल नेत्र तक जाने का उल्लेख हुआ है।<sup>30</sup> वसिष्ठ संहिता में इसका गन्तव्य सव्य पादाङ्गुष्ठांत माना गया है।<sup>31</sup>

यशस्विनी नाड़ी का प्रारम्भ सुषुम्ना के पीछे से होता है त्रिशिखिब्राह्मण के अनुसार यह दाहिने कान तक योग चूड़ामणि के अनुसार बायें कान तक और वसिष्ठ संहिता के अनुसार पैर के दाहिने अंगुष्ठ तक जाती है।<sup>32</sup> विश्वोदरी नाड़ी का उद्गम वराह उपनिषद् में इडा नाड़ी का पार्श्व भाग बताया गया है यहां इसके गन्तव्य की चर्चा नहीं है।<sup>33</sup> वसिष्ठ संहिता में इसे सर्वगता कहा गया है।<sup>34</sup> योग शिखा उपनिषद् में इसे चतुर्विध अन्न भोवत्री कहा गया है।<sup>35</sup>

कुहू नाड़ी वसिष्ठ संहिता और योग चूड़ामणि के अनुसार सुषुम्ना के सामने प्रारम्भ होकर मेद्र पर्यन्त जाती है।<sup>36</sup> योग शिखा में इसे नाभि के नीचे तक जाने का संकेत किया गया है तथा इस उपनिषद् में वारुणी को मूत्र वाहिनी बताया गया है और इसे

मल वाहिनी माना गया है।<sup>37</sup>

शांखिनी नाड़ी वसिष्ठ संहिता के अनुसार सरस्वती के वाम पार्श्व से प्रारम्भ होकर बायें कान तक पहुंचती है।<sup>38</sup> योग शिखा के अनुसार यह अन्नसार के ग्रहण करके मूर्धा में संचित करती है तथा यह अधोमुखी नाड़ी कण्ठकूप से उत्पन्न होती है।<sup>39</sup> योग चूड़ामणि में इसे मूल स्थान अर्थात् गुदा के स्थान (मूलाधार के निकट) तक माना गया है।<sup>40</sup>

पयस्विनी नाड़ी वसिष्ठ संहिता के अनुसार पूषा और सरस्वती के मध्य से प्रारम्भ होती है। वराह उपनिषद् के अनुसार यह पिङ्गला के पार्श्व से प्रारम्भ होती है। इसके गन्तव्य का उल्लेख किसी ग्रन्थ में नहीं है।<sup>41</sup> अलम्बुषा को सबने स्वीकार किया है। इसके गन्तव्य के सम्बन्ध में तीन मत हैं त्रिशिखि ब्राह्मणोपनिषद् के अनुसार यह वायु से प्रारम्भ होती है। योग शिखा के अनुसार कर्णपर्यन्त एवं और योग चूड़ामणि के अनुसार आनन पर्यन्त जाती है।<sup>42</sup> गांधारी नाड़ी सर्वस्वीकृत नाड़ी है इसका गन्तव्य बांया नेत्र है।<sup>43</sup> तपस्विनी नाड़ी का उल्लेख केवल जाबाल दर्शनोपनिषद् में है इसके उद्गम और गन्तव्य का उल्लेख उसमें नहीं है। इसी प्रकार शुभा और कैशिकी की चर्चा केवल त्रिशिखि ब्राह्मणोपनिषद् में है। यहां शुभा को मेढ्र पर्यन्त माना गया है। शुभा नाड़ी के नाम को कूहू का पर्याय माना जा सकता है क्योंकि उसे भी नाभि से नीचे लिङ्ग (मेढ्र) पर्यन्त बताया गया है।<sup>44</sup> यहीं कैशिकी नाड़ी को स्वीकार करते हुए उसे पैर के अङ्गुष्ठ पर्यन्त पहुंचने वाली बताया गया है।<sup>45</sup>

योग शिखा उपनिषद् में विलम्बिनी शूरा राका और चित्रानामक नाड़ियां स्वीकार की गयी हैं। इसमें यशस्विनी का उल्लेख नहीं है। इनमें शूरा की स्थिति भूमध्य पर्यन्त और विलम्बिनी की स्थिति नाभि पर्यन्त

मानी गयी है।<sup>46</sup> इस उपनिषद् के अनुसार राका कन्द से नासिका पर्यन्त जाती है और यह क्षुधा पिपासा को उत्पन्न करने वाली तथा कफजनक भी है।<sup>47</sup> इस उपनिषद् में चित्रा नाम की एक नाड़ी भी स्वीकार की गयी है यह सीवनी नाड़ी तक जाती है यहां इसे शुक्र मोचिनी कहा गया है।<sup>48</sup>

इस प्रकार हम देखते हैं कि चेतना वाहिनी नाड़ियों की संख्या प्रायः सभी आचार्यों ने बहत्तर हजार मानी है। इनमें किसी ने दस को मुख्य माना है और किसी ने चौदह को। योग शिखा उपनिषद् में नाभिकन्द से अनुस्यूत विलम्बिनी नाड़ी का उल्लेख किया है और स्वीकार किया है कि सभी नाड़ियों की उत्पत्ति इससे ही होती है।<sup>49</sup>

## पाद टिप्पणी

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वही 5.20
47. राकाह्वया तु या नाडी पीत्वा च सलिलं क्षणात् ।  
क्षुत्तमुत्पादयेद् घ्राणे श्लेष्माणं संचिनोति च । वही 2.24
48. चित्राख्या सीविनी नाडी शुक्र मोचन कारिणी । वही 5.27
49. विलम्बिनीति या नाडी व्यक्ता नाभौ प्रतिष्ठिता ।  
तत्र नाड्यः समुत्पन्नाः तिर्यगूर्ध्वमधोमुखाः ॥  
योग शिखा 5.20

## EFFECT OF YOGA ON PULMONARY FUNCTION TESTS IN HEALTHY SCHOOL CHILDREN

Jasrotia Bala Rajani, Mondal S., Gandhi A.,  
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### Introduction

**Y**oga is an ancient Indian culture for physical, mental, and spiritual development. The word yoga is derived from the Sanskrit word "Yuj" which means 'to unite'. In our Indian philosophy, everything is permitted by "Supreme universal spirit" (paramatma or God) of which the individual spirit (jivatma) with the universal spirit (paramatma). This is considered to be the ultimate goal of human life.

The regular and faithful practice of Yoga is claimed to bestow upon the practitioner ideal health at physical, mental, emotional, social and spiritual levels. During the last four- five decades, the various techniques from the science of yoga have been the subject of scientific experimentation. They have been found to have demonstrable effects on lowering heart rate and blood pressure, besides a beneficial effect on ventilatory status and psyche of individuals<sup>1,2,3</sup>. Yoga has thus been found particularly effective in cure and management depressive disorders<sup>4</sup> and diseases having a psychosomatic component e.g. Bronchial asthma<sup>5</sup>, hypertension etc<sup>6</sup> and has enabled a more holistic approach towards the patients illness, which often has multiple components.

Studies done by several researcher showed that regular practice of yoga lead to significant improvement in pulmonary function which include increase in peak expiratory flow rate (PEFR), vital capacity (VC), forced vital capacity (FVC), forced expiratory volume one (FEV1), maximum mid expiratory flow rate (MMEFR). Very few studies have also demonstrated the beneficial effects of yoga training on resting pulmonary function<sup>1</sup>.

The present study was undertaken on effects of yoga on pulmonary functions in healthy children in the age group of 10- 14 years.

### Aim & Objective

To study the effect of yoga on pulmonary functions in healthy school children.

### Materials & Methodology

Thirty subjects of either sex between the ages of 10-14 years were selected for the study, with an informed consent from their parents. They were studied in different groups as follows.

Group I (n=15): Not practicing yoga.

Group II (n=15): Enrolled for practicing yoga.

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**Inclusion Criteria**

- Apparently healthy subjects were selected for the study. They were siblings of medical students, children of college staffs, children attending a nearby school.
- While selecting normal subjects the age, height & socioeconomic status was well matched.

**Exclusion Criteria**

- No family history of asthma, allergic, rhinitis, hay fever or eczema.
- A thorough physical examination & history was undertaken to exclude the following:
  - a) Any recent episode of respiratory infection.
  - b) Any chronic cardiopulmonary disease.
  - c) Thoracic cage abnormality.
  - d) Neuromuscular disorder.

The following measurements were carried out:

- Anthropometry data (Height & Weight)
- Heart rate
- Respiratory rate
- Blood pressure
- Pulmonary function tests.

The following pulmonary functions were measured:

- Vital capacity (VC)
- Forced vital capacity (FVC)
- Forced expiratory volume (as % of FVC) in one sec. (FEV<sub>1</sub>%)

- Maximum mid expiratory flow rate (MMEFR)
- Peak expiratory flow rate (PEFR)

The pulmonary functions were recorded by **SPIROMETER DATOSPIR 110/120** developed by SIBELMED, Barcelona. The Spiro lab automatically selected the best test & the results were displayed from the main screen ongoing tests. All parameters are recorded at baseline and 6 weeks of study.

The following yogic practices were performed regularly for 45 minutes daily for 6 days a week for 6 weeks under supervision of yoga expert and then at home under parents supervision.

- |  |        |
|--|--------|
| • SUKSHMA VYAYAMA<br>(Micro exercises) | 5 min  |
| • STHULA VYAYAMA<br>(Macro exercises)  | 3 min  |
| • ASANAS (Postures)                    | 22 min |
| • PRANAYAMA                            | 10 min |
| • DHARNA & DHYANA<br>(Om Meditation)   | 5 min  |

**Statistical Analysis**

For each variable mean & standard deviation of the group were calculated according to accepted statistical method. Intergroup mean differences were tested by Unpaired t test. Changes in various parameters from the initial level to different points of time were compared with paired t test.

Adherence to the following 'p' values was followed:

p > 0.05 = Not significant, p < 0.05 - p > 0.01 significant, p < .001 highly significant.



## Results

Table 1. Baseline age, anthropometric data and sex distribution of group I &amp; II Subjects

Parameters	Group I (n=15)	Group II (n=15)	I Vs II
Sex (M:F)	4:11	8:7	
Age (years)	11.67± 1.23	11.53± 0.92	NS
Height (cm)	146.13± 10.63	147.53± 8.12	NS
Weight (kg)	42.53± 12.25	39± 10.73	NS

Table no. 1 shows that there is no significant difference in the age, height, weight amongst group I & II.

Table 2. Baseline HR, RR, Blood Pressure in the two groups

Parameters	Group I (n=15)	Group II (n=15)	I Vs II
HR (bpm)	85.20 ± 9.91	80.93 ± 16.73	NS
RR (per/min)	17.80 ± 2.34	19.07 ± 3.61	NS
SBP (mmHg)	112.13 ± 8.67	113.87± 10.49	NS
DBP (mmHg)	70 ± 8.42	73.20 ± 9.31	NS

It is observed from above table no.2 that there is no significant difference in HR, RR, SBP and DBP between group I & II.

Table 3. Physiological Parameter of two groups after 6 weeks

Parameters		Group I (n =15)	Group II (n =15)
HR (bpm)	B	85.20±9.91	80.93±16.73
	6 wks	85.83±5.36 (n=12)	86.53±6.02
RR (per/min)	B	17.80±2.34	19.07±3.61
	6 wks	18.67±3.39 (n=12)	20.00±3.11
SBP (mmHg)	B	112.13±8.67	113.87±10.49
	6 wks	116.17±7.45 (n=12)	110.00±9.26
DBP (mmHg)	B	70±8.42	73.20±9.31
	6 wks	68.17±9.24 (n=12)	72.13±11.45

Table no 3. Shows no significant changes in physiological parameters viz HR, RR, SBP and DBP in two groups.

Table 4. Observed PFT (Lung volumes and flow rates) at baseline in two groups

Parameters	Group I (n =15)	Group II (n =15)	Group I vs Group II
VC (L)	2.22 ± .48	1.96 ± 0.37	NS
FVC (L)	2.17 ± .39	1.94 ± .37	NS
FEV <sub>1</sub> ( L)	1.98 ± .43	1.82 ± .36	NS
FEV <sub>1</sub> %	90.68 ± 6.69	93.56 ± 4.70	NS
PEFR (L/sec)	4.15 ± 1.01	4.42 ± .91	NS
MEFR (L/sec)	2.97 ± .71	3.23 ± .72	NS

It is observed from Table 4 that all the baseline lung volumes and flow rates between groups I & II are similarly comparable.

**Table no 5. Serial Pulmonary Function Tests (Lung volumes) in subjects of the two groups after 6 weeks**

Parameters		Group I (n =15)	Group II (n =15)
VC(L)	Basal	2.22± .48	1.96± .38
	6wks	2.47± .37 (n=12)	2.17± .33***
FVC (L)	Basal	2.17± .39	1.93± .37
	6wks	2.34 ± .31 (n=12)	2.12± .34***
FEV <sub>1</sub> (L)	Basal	1.98 ± .43	1.82 ± .36
	6wks	2.14± .33 (n=12)	1.99± .29***
FEV <sub>1</sub> %	Basal	90.68±6.69	93.56±4.71
	6wks	91.25±5.27 (n=12)	93.93±3.86

\*p value < .05,  
 \*\*p value < .01,  
 \*\*\*p value <0.001.

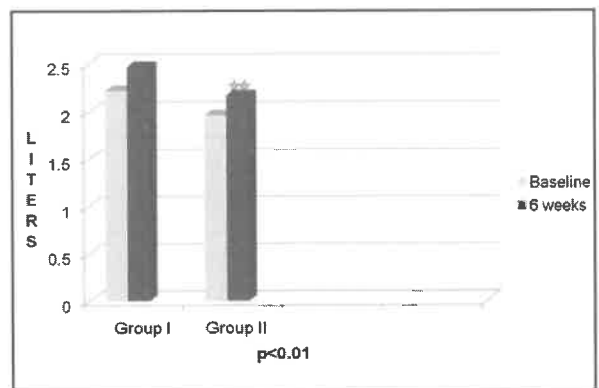
The above table no 5 shows that the lung volumes in group I has not changed significantly at 6 weeks of study from baseline values. However in healthy children practicing yoga (group II) there is a very highly significant increase in VC, FVC, FEV1 at 6weeks of study.

**Table no 6. Serial PFT (Flow rates) in subjects of the two groups at 6 wks of study**

Parameters		Group I (n =15)	Group II (n =15)
PEFR (L/sec)	Basal	4.15 ± 1.01	4.42±0.91
	6wks	4.56±1.02 (n=12)	4.80±.84**
MEFR (L/sec)	Basal	2.97 ± .71	3.23±.72
	6wks	3.18±.75 (n=12)	3.32±.82

\*p value < .05,  
 \*\*p value < .01,  
 \*\*\*p value <0.001.

Table no 6 shows that in group I there is no significant changes in PEFR, MEFR at 6 weeks, the group II children on the other hand showed an highly significant improvement in PEFR at 6 weeks whereas in MEFR no such change is observed.



**Fig 1. Changes in VC in two groups at different intervals**

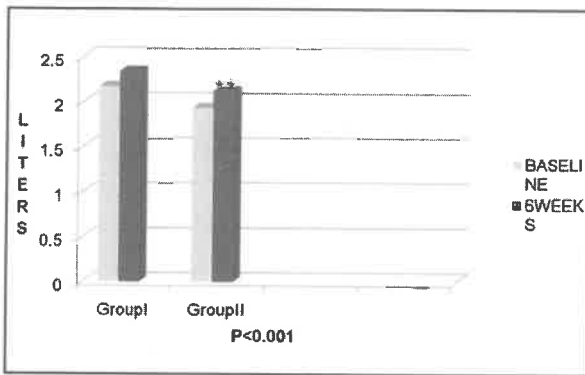


Fig 2. Changes in FVC in two Groups at different intervals

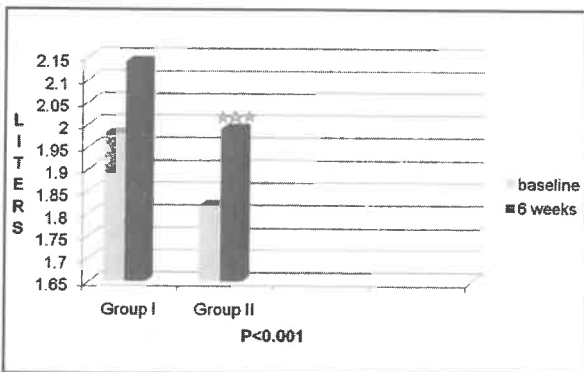


Fig 3. Changes in FEV1 in two groups at different intervals

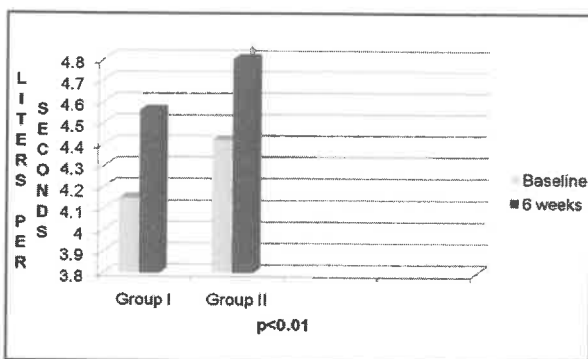


Fig 4. Changes in PEFR in two groups at different intervals

### Discussion & Conclusion

Yoga is a scientific way of life which has been practiced for centuries in India with the unique aim of reaching a state of complete physical, mental and spiritual development of the individual. The baseline age, height, weight, HR, RR, BP and PFT are comparable amongst group I and group II. After practice of yoga the healthy children may be benefited in terms of improved pulmonary functions. Healthy children practicing yoga showed a significant increase in VC, FVC, FEV<sub>1</sub> and PEFR following yoga practice. The improvement in VC and FVC may be due to increased development of respiratory musculature incidental to regular practice of yogic exercise. Pranayama makes the respiratory apparatus empty and fill more completely and efficiently which is recorded in terms of increased FVC. Increase in PEFR is due to decrease in airway resistance. Several studies<sup>4</sup> have also reported similar increase in VC, FVC, FEV<sub>1</sub>, PEFR, and MEFR<sup>1,7</sup>.

Contrary to the general belief that the children either may not cooperate or practice yoga; we found them quite enthusiastic, efficient and regular to perform it.

### Recommendation

This study has been carried out on a small group only and is by no means generalized.

Hence we consider it to be an incentive to a further and more detailed study.

Further studies are also required to formulate the clinical guidelines.

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## ROLE OF YOGA IN THE PREVENTION OF DM COMPLICATIONS

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## ABSTRACT

Once regarded as a single disease entity, diabetes is now seen as a heterogeneous group of diseases, characterized by a state of chronic hyperglycemia, resulting from a diversity of etiologies, environmental and genetic, acting jointly. Characteristically, diabetes is a long term disease with variable clinical manifestations and progression. Chronic hyperglycemia leads to a number of complications- cardiovascular, renal, neurological, ocular and others such as intercurrent infections. As it is world wide distributed and becoming aggravated day by day and controlling of blood sugar is not only the matter of treatment but prevention of the unwanted irreversible and reversible complications also, we have tried to provide some relief by certain yogic procedures. The study was conducted in 30 clinically diagnosed cases of DM to assess the role of these yogic procedures in prevention of these complications. It was observed that statistically significant improvement was noticed in clinical as well as hematological parameters. From the results it may inferred that yoga may help to manage the some clinical features and prevent the complications of DM.

**Key words:** Diabetes, pranayama, satharma, life-style, asana.

## Introduction

**D**iabetes mellitus (DM) is a burning problem of today and American Diabetes Association expert committee defined as “a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action or both.” The chronic hyperglycemia is associated with long term damage, dysfunction and failure

of various organs especially eyes, kidneys, nerves, heart and blood vessels. Thus diabetes covers a wide range of heterogeneous disease.

DM is an “iceberg disease” and occurred globally, it has been especially dramatic in societies in economic transition, in newly industrialized countries and in developing countries. Currently the number of cases of diabetes worldwide is estimated to be around

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150 million. This number is predicted to double by 2025, with the greatest number of cases being expected in China and India.

DM is of two types i.e. IDDM and NIDDM. Clinical features vary from patient to patient. Onset is usually gradual in adults but acute in children. Modes of clinical presentations are-

1. With one or more common symptoms- polyuria, intense thirst with perhaps nocturia, polyphagia, weight loss, weakness and lassitude, pruritus vulvae in females and balanitis in males, leg cramps, crops of boils, loss of libido and impotence of middle aged males. Blurring of vision is occasionally.
2. Coma- onset with coma is rare.
3. Accidental discovery or asymptomatic glycosuria.
4. Symptoms due to complications.

### Complications

The diabetic patient is susceptible to a series of complications that course morbidity and premature mortality. These complications can be broadly divided into two groups i.e. microvascular and macrovascular.

1. **Macrovascular:** Among the macrovascular complications atherosclerosis is more extensive. Disorders of lipid metabolism are common and prominent in diabetes and are important risk factor for the high frequency of atheromatous complications. This is particularly relevant to type II diabetes. Common conditions are intermittent claudication, gangrene, organic impotence in males, coronary artery disease, stroke, silent myocardial infarction, diabetic cardiomyopathy, and hypertension.

2. **Microvascular:** In contrast to macrovascular, microvascular is specific to diabetes. Small blood vessels throughout the body are affected but the disease process is of particular danger in three sites i.e. retina, renal glomerulus and nerve sheaths and produces great number of symptoms.

Diabetic patients are prone to develop multiple chronic complications leading to irreversible disability and death. Coronary artery disease and stroke are more common in diabetics than in the general population. Microvascular complications like diabetic renal disease and diabetic retinopathy and neuropathy are serious health problems resulting in deterioration of the quality of life and premature death. In fact diabetes is listed among the five most important determinants of the cardiovascular disease epidemic in Asia. Metabolic disorders in pregnant diabetic woman as well as those caused by gestational diabetes pose a high health risk, to both the mother and fetus.

Children show remarkable psychological resilience to the diagnosis of diabetes. About 1/3 have some psychological distress shortly after diagnosis mostly an "adjustment disorder" consisting of temporary somatic complaints, sleeping disorders, depression and anxiety. Adults with recent onset type I diabetes probably have similar psychological responses. There is apparently little psychological morbidity after diagnosis in adults with type II diabetes.

No doubt, insulin and other drugs have great role in the management of DM. But we are enabling to give a comfortable and improved life to the patient. Here the role of yoga comes. Yoga is the science of right living and as such, is intended to be incorporated in daily life. It

works on all aspects of the person i.e. physical, vital, mental, emotional and spiritual. A more practical level, yoga means of balancing and harmonizing the body, mind and emotions. This can be done through the practice of astang yoga. This technology is suitable for each and every member of the society, young or old, male or female, married or unmarried, Hindu or Non-Hindu.

### Possible Yoga Therapy for DM

Asana- sirsasana, sarvangasana, janusirsasana, paschimottanasana, virasana, sputa-virasana, ardhmatsyendrasana, dwipadaviparita-dandasana, bhujangasana and shavasana.

Mudra - mahamudra, yogamudra.

Bandha - Uddiyana bandha.

Pranayama - nadi shodhan.

Sat karma - nauli.

### Clinical Study

Present study have been done in the OPD of swasthavritta and yoga unit of Basic principles department, faculty of Ayurveda, Sir Sunderlal Hospital, BHU, Varanasi. Total 30 diagnosed patients of DM were selected from different age group and sex. All the patients were undergone through the clinical investigation. All of them were given specific yoga therapy with certain oral Ayurvedic medications for 3 months. Clinical symptoms and blood sugar levels were recorded before starting the treatment and after some time taken the treatment.

### Yoga therapy advised for patients is –

Asana - Tadasana

Janupadahastasana

Yogamudrasana

Gomukhasana

Bhujangasana

Paschimottanasana

Shavasana

Pranayama- Nadi shodhana

### Observation, Analysis & Results

1. Distribution of patients according to age, sex & life-style

(i) Age:

Age (yrs.)	No.	%
30-40	03	10
41-50	06	20
51-60	12	40
61-70	09	30
<b>Total</b>	<b>30</b>	<b>100</b>

(ii) Sex

Sex	No.	%
Male	21	70
Female	09	30
<b>Total</b>	<b>30</b>	<b>100</b>

(iii) Life-style

Life-style	No.	%
Sedentary	18	60
Non-sedentary	12	40
<b>Total</b>	<b>30</b>	<b>100</b>

2. Data related to response of treatment

(i) Mean of symptoms score before treatment and after treatment -

Symptoms	Mean B.T.	Mean A.T.
Polyuria	1.6	1.0
Polyphagia	1.4	1.1
Polydipsia	1.2	1.0
Weakness	1.3	1.1
Cramps on walking	1.6	1.2
Loss of libido	1.2	1.0
Joint pain	1.8	1.3
Abdominal discomfort	1.5	1.0

(ii) Mean of blood sugar levels before treatment and after treatment-

Blood sugar	B.T.	A.T.
Fasting	111.8	97.7
Postprandial	197.0	179.0

**Discussion**

While yoga’s central theme remains the highest goal of the spiritual path, yogic practices give direct and tangible benefits to everyone regardless of their spiritual aims. Today yoga has succeeded as an alternative form of therapy in diseases such as asthma, diabetes, blood pressure, arthritis, digestive disorders and other ailments of a chronic and constitutional nature where modern science has not. According to medical scientist, yoga therapy is successful because of the balance created in the nervous and endocrine systems and organs of the body.

Statistical analysis indicates a clear improvement in the various clinical symptoms and blood sugar levels which is an important factor in the prevention of various complications resulting from DM. Increased blood sugar level is responsible for the development of various complications which is found in physiological limits after treatment. It is a great achievement in case of DM. By using this study we shall not be able to control blood sugar levels only, but it will be helpful for the prevention of complications of DM.

**Conclusion**

1. Yoga therapy is useful in DM but it requires an intense biochemical, clinical and experimental study to establish this effect/fact.
2. Effect of yoga therapy can be explored in following way-
  - It releases mental tension.
  - Improves peripheral circulation.
  - Decreases cholesterol level.
  - Due to proper abdominal massage it increases digestive power and relieves constipation.
  - Increases insulin sensitivity of cells.
3. In order to assess the prevention of complication of DM, a follow up study for longer time is recommended.

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# IYENGAR YOGA AS A COMPLEMENTARY TREATMENT OF GENERALIZED ANXIETY DISORDER: PILOT STUDY

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## ABSTRACT

*This is a report of the pilot study of the benefits of Iyengar Yoga practices designed for patients with Generalized Anxiety Disorder (GAD) and its potential as a complementary treatment of GAD. The participants were nine patients with GAD, who showed a clinical picture of anxiety and depression coupled with general neurotic symptoms and somatic dysfunctions.*

## Introduction

In 2004, a systematic review was conducted of the evidence for the effectiveness of yoga for the treatment of anxiety and anxiety disorders (Kirkwood et al., 2005). Positive results were reported in eight studies. The authors of the review concluded that because of the diversity of anxiety conditions treated and the poor quality of most of the studies, it was not possible to say that yoga is effective in treating anxiety in general. They also suggested that further well conducted research is necessary, particularly if focused on specific anxiety disorders. In a previous study of Iyengar Yoga as a complementary treatment of major depressive disorder, we found that clinical

measures of both depression and anxiety were significantly reduced from pre- to post-intervention (Shapiro et al., 2007). This is a report of the findings of a pilot study of Iyengar Yoga as a complementary treatment of patients specifically diagnosed with Generalized Anxiety Disorder (GAD).

## Methods

### Participants

The participants who volunteered for this study were patients of the UCLA Anxiety Disorders Clinic, A. Bystritsky, Director, with the primary diagnosis of GAD in the mild to moderate range. Those with other serious primary psychiatric

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Running head: Iyengar Yoga for Anxiety Disorder

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conditions such as major depression or bipolar disorder or psychosis were excluded. Also excluded was anyone with physical conditions that would limit their ability to participate fully in the yoga practices. Those with prior experience in yoga exceeding three months were also excluded.

Eleven people were recruited of whom 2 decided not to participate for non-study reasons. The 9 participants included 7 women and 2 men; age, 32.9 yrs. (23-54) (mean, range); education, 18.3 yrs. (14-28); medication, 44 mos. (0-132); marital status, 5 single, 3 married, 1 divorced; occupation, 4 students, 1 teacher, 1 writer, 1 editor, 1 analyst, 1 sales; medication, 7 of the 9 were on anti-anxiety or anti-depressant medications; 5 reported other conditions (chronic fatigue, fibromyalgia, colitis, migraine).

### *Procedure*

17 1-hour Iyengar Yoga classes (3/wk) were led by three certified Iyengar Yoga, teachers (Marla Apt., Paul Cabanis, Jim Benvenuto). Attendance was erratic, from 5 to 16 classes; most participants attended 8 or 9 classes (attendance: 5, 8, 8, 8, 9, 9, 9, 13, 16).

The yoga asanas and sequences were designed specifically for anxiety in consultation with and guidance of B.K.S. Iyengar. Each session included inverted postures, supported backbends, supine poses and supported forward bends. The teachers emphasized relaxing regions on the body that are prone to tension as a result of anxiety. The backbends focused on stretching the abdomen where there is often tightness associated with anxiety. In all poses, close attention was paid to the position of the head and neck so that the back of the neck was elongated, the facial muscles (where concentrated tension is a symptom of anxious

thinking) were relaxed and allowed to spread. The participants in the study were taught how to relax the eyes, forehead and throat to help calm the mind. The participants were also taught simple pranayama (breathing) techniques that focused on soothing an overactive mind through attention to and lengthening of the exhalation.

### *Measures*

Assessments were done pre- and post-intervention including: diagnostic interview (MINI, pre-yoga only), Sheehan Disability Scale, Hamilton Anxiety (Ham-A) and Depression (Ham-D) Scales, UCLA4D Anxiety Scale, Cook Medley (CM) Hostility Scale, Spielberger Trait Anxiety (STAI) and Anger Expression (ANGIN, ANGOUT) Scales, Marlowe-Crowne (MC) Social Desirability Scale (defensiveness), Pittsburgh Sleep Scale, Quick Inventory of Depressive Symptoms (QIDS), SF-36 Fitness Scale, Symptom Check List-90 (SCL). Before and after each yoga class, participants rated 20 moods, representing positive, negative, and energy/arousal related emotional states.

### *Major Findings*

Initial data: Ham-A 15.7 (9-23), Ham-D 12.7 (9-19), UCLA 4D Anxiety Total 50.8 (28-69). These scales were intercorrelated: Ham-A – Ham-D 0.81, Ham-A – UCLA4D 0.67, Ham-D – UCLA4D 0.63. All three scales were positively correlated with CM, STAI, SCL, QIDS, and Sheehan Family disability (emotional problems affecting family) scores and with reported caffeine use and smoking, and negatively correlated with several SF-36 fitness scales (general health, mental health). In general, the pattern is one of anxiety and depression coupled with general neurotic symptoms and somatic dysfunctions.

From pre- to post-intervention, significant reductions were obtained in the means of Ham-A, 6.6 (amount of reduction) ( $p < 0.02$ ) and Ham-D, 5.6 ( $p < 0.005$ ), plus a reduction in CM (indirect hostility) (2.9,  $p < 0.02$ ), improvement in a Sheehan scale (less disruption at work due to emotional symptoms) and in a SF-36 fitness scale (less difficulty at work due to physical issues).

In regard to the changes in specific items on the Ham scales, most changed in a healthier direction. The following showed significant ( $p < 0.05$ ) effects: On the Ham-A, items 5, 7, 8, and 14: less difficulty in concentrating, fewer somatic complaints (muscular, sensory), and less expressed anxiety symptoms during the Ham-A interview. On the Ham-D, items 10, 12, and 15: less psychic anxiety, fewer somatic (GI) complaints, less hypochondriasis.

As to pre-yoga data predicting improvement, these were assessed by correlating test scores at the beginning of the study with changes from pre- to post-yoga in the Ham scales. Taking all correlations greater than 0.50, these are the measures associated with improvement: With Ham-A: higher Ham-A total; SF-36 scales, less bodily pain, more physical health, more vitality; on the Sheehan, less social and work limitations. With Ham-D: the same SF-36 and Sheehan effects plus lower scores on ANGERIN.

As to the mood ratings, significant changes ( $p < 0.05$ ) were obtained pre- to post-class on the average over all sessions attended by each participant in 19 out of 20 moods. Positive moods increased, negative moods decreased, and energy-related moods increased. The reduction in Ham-A from pre- to post-intervention was correlated with mean pre- and mean post-session mood ratings per subject.

Taking correlations greater than 0.50, the following post-session moods were associated with improvement in anxiety on the Ham: less fatigued, less depressed, less frustrated, less tired. And before class, participants who rated themselves as less depressed, relaxed, and tired did better. With regard to depression, reduction in Ham-D scores from pre- to post-intervention was associated with the following post-session ratings: less blue, depressed, fatigued, frustrated, irritated, pessimistic, relaxed, and sad. In terms of pre-session ratings, the following were associated with improvement in the Ham-D: less angry, blue, depressed, frustrated, irritated, pessimistic, sad, sleep, and tired.

### Conclusions

The findings indicate that Iyengar Yoga practices designed for anxiety yielded significant benefit for the participants, a small sample of patients with anxiety and depression and other neurotic symptoms and physical complaints. At the end of the intervention, most of the participants would no longer be considered to qualify for the study. Their scores on the major scales defining GAD would be too low. Their final level of clinical depression would also qualify them as non-depressed. Thus, for both GAD and depression, they would be considered to be in remission.

The clinical and test findings support the potential benefit of yoga as a complementary treatment of GAD. It is of interest that the specific improvements tended to fall into the "somatic" or physical and behavioral domains, not so much in terms of cognitive aspects of anxiety such as "worry." It also seems that those who were somewhat healthier, physically speaking, and those whose moods were more positive and less negative to begin with did

better. Moreover, the participants whose moods improved the most from before to after a class did better in general.

This was a preliminary study designed to examine the potential and feasibility of Iyengar Yoga as a complementary treatment of GAD and to provide a basis for further systematic research. The findings provide evidence in support of its potential for a specific anxiety disorder. We need now to compare Iyengar yoga with other forms of physical activity and exercise and other complementary treatment methods.

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## CONCEPT OF NADANUSANDHANA IN DIFFERENT HATHA YOGA TEXTS

\*Mukesh Yadav

### ABSTRACT

*Nādānusandhāna is an important practice of Nātha cult. In this practice Yogi hears the inner sounds (nāda, anāhata nāda). With this practice, practitioner attains Samadhi, the higher state of consciousness. In this state yogi feels a great bliss. There are four stages of Nādānusandhāna which are ārambhāvasthā, ghaṭāvasthā, paricayāvasthā and niṣpattyāvasthā. For hearing the inner sound, yogis sit in siddhāsana and apply ṣaṅmukhī mudrā. Then they hear the sound in the right ear. When prāṇa enters in suṣumṇā then different subtle and voluminous sounds like sound of bells, flute, drums, thunder, roar of mountains etc. are heard. As the practice progresses all three granthi-s are pierced and yogi attains a perfect state of body and mind. Nādānusandhāna has been described in many Hathayoga texts like Haṭhapradīpikā, Haṭhatattvakaumudī, Yogopanicad etc. It has been considered foremost among all kinds of Laya.*

### Introduction

**N**ādānusandhāna is an important practice of Hathayoga. Its Practice has been described by Sages like Vashishtha in Vashishtha-samhita, by Ādishankaracharya in Yogataravali and also by Svatmaram author of Hathapradipika. By its practice, practitioner attains state of Laya (dissolution of mind), when one forgets all the objects of senses and gets absorbed in the object of meditation. The mind, body and prāṇa are completely subdued. Although, according to Haṭhapradīpikā (4-66) the number of methods for achieving Laya provided by Ādinatha (Lord Shiva), are one crore and a quarter (sapādakoti), Nādānusandhāna is held to be the foremost of them all. In Shiva-samhita also it has been considered superior –

*nāsanaṁ siddhāsanadr̥ṣaṁ na kumbhasadr̥ṣaṁ balaṁ /  
na khecarīsamā mudra na nādasadr̥ṣo layaḥ // (Shivasamhita-5/30)*

i.e. 'There is no posture like that of Siddhāsana, no power like that of Kumbhaka, no mudrā like the khecarī and no Laya like that of nāda (the mystic sound).' Shri Ādishankaracharya also accepts that nādānusandhāna is the best method for the concentration of the Chitta in

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Yogatārāvalī-

*sadāūivoktāni sapādalakcalayāvadhanāni vasanti loke /  
nādānusandhānasamādhimekaṁ manyāmahe mānyatamaṁ layānām // (YT-2)*

The practice of Nādānusandhāna has been described in detail in many hathayoga classics like Haṭhapradīpikā (H.P.), Haṭhatattvakaumudī (H.T.K.), Nādabindūpanīcad (NBU), śivasamhitā (SS), Vasicmhasamhitā (VS) etc.

### Meaning and Definition

Nādānusandhāna is a practice of hearing the subtle sounds (Nāda, Anāhata nāda) with one pointed concentration of mind. Word Nādānusandhāna is made up of two words - nāda + anusandhāna.

Nāda is a Sanskrit word. Its general meaning is sound. But during practice of Nādānusandhāna, the sound heard is different from all the sounds which are commonly heard. It is not sound created by external instruments of all kinds. It is the celestial sound heard by Yogis during their meditation. It is also called Anāhata nāda literally means the unstruck sound. It may also be translated as the inner sound because nāda is produced or perceived only inside the body.

‘Ausandhāna’ means close inspection, investigation or aiming at. Thus Nādānusandhāna may be defined as investigation of inner mystic sound or fixing one’s attention upon inner sound (nāda).

In well known tāntrika text Vijñāna-bhairava hearing of nāda has been mentioned as a means for attaining Brahma.

*anāhate pātrakarṇe’ bhagnaśabde sariddrute /  
śabdabrahmaḥi nicṇātaḥ param brahmādhigacchati // (V.B.- 38)*

i.e. One who is deeply versed and deeply bathed or steeped in Nāda which is Brahman in the form of sound (śabdabrahmani nicṇātaḥ), which is vibrating inside without any impact (anāhate), which can be heard only by the ear that becomes competent by yoga (pātrakarṇe), which goes on sounding uninterruptedly (abhagnaśabhe) and which is rushing headlong like a river (sariddrute) attains to Brahman (brhmādhigacchati). Here nāda has been called as śabdabrahman. Here in Vijñāna-bhaivava the reference is the subtlest nāda that vibrates in prāṇaśakti present in sucumnā. Prāṇaśakti is, in the universe, representative of parāśakti, the śakti of Paramśiva. As Haṭhapradīpika also describes:

*yat kiñcinnādarūpeṇa śrūyate śaktireva sa /  
yastatvānto nirākarāḥ sa eva prarameśvaraḥ // H.P. - 4/102*

### Nāda, Mind and Prāṇa

Nāda has been considered snare for capturing inner deer (mind) and also hunter who kill the deer i.e. mind. Mind is wavering and extrovert in nature. With the practice of āsana and

prānāyāma, prāna gradually comes under control and activity of mind is also diminished. At that stage with the practice of Nādānusandhāna mind is concentrated on nāda and in the final stage mind is disappeared. At that stage bodily activities are diminish and Yogi is not affected by any external disturbances like cold, heat etc. because mind is the master of senses i.e. activity of senses depend upon the mind. Once mind is absorbed in nāda, senses also follow the mind (the master). Thus senses do not come in contact with their subjects because mental sensory and motor activities are reduced to minimum. Even physical organs come in contact of objects of senses but Yogi does not feel them because mind do not co-operate the senses.

Prāna is the medium of all activities. It is the life force of the body. Mind and senses works because of it. Thus prāna is the master of Mind. If prāna is controlled then mind automatically comes under control and vice-versa. It is clear from the following verse of Hathapradīpikā.

*cale vāte cale cittam niSCALE niSCalam bhavet /  
yogī sthanutvamāpnoti tato vāyum nirodhayet // (H.P.- 2/2)*

Relation between nāda, mind and prāna has been shown in the following verse from Hathapradīpikā –

*indriyāṇām mano nātho manonāthastu mārutaḥ /  
mārutasya layo nāthaḥ sa layo nādamāsritaḥ // HP - 4/29//*

It is clear from this verse (HP - 4/29) that with Laya of mind, prāna also achieves the state of Laya and with the Laya of both the prāna and the mind an exquisite bliss is experienced. It is a state of Higher consciousness.

### Method of performance

According to Yogi Gheranda Nādānusandhāna is to be practiced at the mid- night when there is no external sounds of any living creatures etc., then closing the ears with hand yogi should inhale and retain the breath and hear the internal sounds in the right ear. (GS-5/73)

Technique mentioned in Hathapradīpikā is as follows:

*muktāsane sthito yogī mudrā sandhāya śāmbhavīm, /  
śṛṇyāddakṣiṇe karṇe nādamantasthamekadhiḥ // HP- 4/67//  
śravaṇapumanayanayugalaghrāṇāmukhānām nirodhanam karyamā/  
śudhakucumnāsaraṇau sphumammalaḥ śṛyate nādaḥ // HP- 4/68//*

According to Hathapradīpikā for listening the inner sound practitioner has to sit in muktāsana (siddhāsana). Then he has to apply śāmbhavī mudrā i.e. concentration upon inner object like chakra etc. Now he has to hear the nāda in the right ear with great attention. This state is added by closing the ears with the thumbs of each hand and using the fingers to close the eyes, nostrils and mouth. Yogi Surendradeva (in HTK-54/5) and Shri Brahmānanda, author of Jyotsnātīkā (commentary on HP) describes the locations of fingers that the eyes are closed



with index fingers, nostrils are closed with the middle fingers and mouth is closed with other fingers. This is called *ṣaṇmukhī mudrā*. (*yogacūḍāmanyopaicad-114*)

Some Hathayoga-texts recommends *pūraka* and *Kumbhaka* like Yogi Surendradeva describes in (HTK-54/3) that after closing the senses practitioner has to inhale through the mouth and hold it in the chest along with fire and *apāna* and meditate on it in the head.

According to *Tripurāsārasamuccya* cited in *Haṭhatattvakaumudī*:

*Keeping the head and trunk straight, practitioner has to first adopt siddhāsana. Thereafter closing the senses air is to be inhaled through mouth by making the tongue like beak of crow. In this way he should meditate on Brahmā. If practitioner undertake this practice daily as per capacity then vital air (prāṇa) will enter in central pranic channel (susumnā). Then the nāda will reveal on its own and subsequently it will produce sounds resembling a gentler note that of viṇā which brings about Bliss.*

In the beginning of practice loud and voluminous sounds of various types are heard. As the practice progresses sharper and lower sounds are heard. (H.P. 4/84)

*śruyate prathamābhyase nādo nānāvidho mahān /  
tatobhyāse vardhamāne śruyate sūkcamsūkcamaḥ // (H.P- 4/84)*

One the *nāda* is revealed giving up all the worries the practitioner should concentrate on *nāda* alone. The roving mind should not be allowed to wander elsewhere by withdrawing attention from *nāda*.

#### Manifestation of Nāda:

Hearing of *Anāhata* sound is a sign of the purification of pranic channels (*nāḍī*). If all the pranic channels are free from all impurities, *Anāhata* sound can be clearly heard by applying *ṣaṇmukhī mudrā* or without it. In *Hathatattvakaumudī*, Yogi Surendradeva says-

*sarecapūrainilasya kubhaiḥ sarvāsu nā īcu viūodhitācu /  
anāhatākhyo bahubhiḥ prakanāraiantaḥ pravartteta idānimāhuḥ //*  
(*Yogatārāvalī-3*), (HKT: 54/2)

i.e. with the practice of exhalation (*recaka*), inhalation (*pūraka*) and retention (*kumbhaka*) of air (*anila* = *prāṇa*) all the pranic channels are purified which enables one to hear various kinds of *Anāhata* sounds. It shows that practice of *prāṇāyāma* is necessary for the practitioner before practicing *Nādānusandhāna*.

*Yogacū amanpanicad* (YCU) explains when and how, *nāda* is manifested –

*saṁbaddhāsanaśmedhamāśghriyogalaṁ karṇākcināsāpu  
-ṭadvārānaśgulibhiniryamyā pavaṇam vaktreṇa vā pūritam /  
baddhā vakcasi bahvapānasahitāū mūrdhni sthitam-  
devam yāti viūechatattvasamatām yogiśvarastanmanāḥ //*

*gaganm pavane prāpte dhvanirutpadyate mahān /  
ghantādīnām pravādyānām nādasiddhirudīritā //*

(YCU - 114,115) and (HKT - 54/3,4)

Thus when vital air i.e. prāna enters in space (*gaganm*) situated in anāhata cakra then different sounds resembling bell etc are manifested. According to *Tripurāsārasamuccya* cited in HTK when prāna courses through susumnā, then nāda is revealed on its own.

The Darśnopaniśad (6/36-38) describes the perception of sounds in the highest position, or chakra in body known as Brahmarandhara, located in the region of the head. It says:

When air (*prāna*) enters the Brahmarandhara, *nāda* (sound) is also produced there, resembling at the first the sound of a conch-blast (*śaṅkhadhvani*) and like the thunder-clap (*meghadhvani*) in the middle; and when the air has reached the middle of the head, like roaring of a mountain cataract (*giriprasravaṇa*).

### Different types of Nāda

According to Haṭhapradīpikā, in the beginning practitioner hears different loud sounds. As the practice progress the he hears subtle and, gradually, subtler sounds. (HP-4/84) Further Swami Swātmarām explains in Haṭhapradīpikā that –

*ādhou jaladhijīmūtabherījhajrajharasambhavāḥ /  
madhye mardalaśṅkhotthā ghantakāhalajāstathā //  
ante tu kiṅkiṇīvansavīnābhramaraniḥsvanāḥ /  
iti nānāvidhā nādāḥ śrūyante dehamadhyagā //* (HP : 4/85, 86), (NBU : 34, 35)

In the beginning loud sounds resembling those of roaring of ocean, rumble of, a big drum and (a pair of) cymbals are heard. At the middle stage sounds resembling those of a small drum, a conch, a bell and a gong are heard. In the end sounds resembling those of small bells, flute, Vīnā and humming bee. Thus various sounds are heard inside the body.

According to HKT, in the beginning sounds like that of intoxicated swarm of bee are heard. Then comes the deep and rhythmic sound of flute. Then the sound like that of ringing of the bells is heard. Thereafter, deep sounds of the ocean and thundering clouds are heard. All these sounds are produced from the cavity of Brahmanā ī (...*iha kuhare vartate brahmanā yāḥ*: HTK-54/8).

According to HU (16) following ten kinds of sounds are heard. The first is the sound 'cīṇi' (like the pronunciation of the word); the second is 'cīṇi-cīṇi'; the third is the sound of a bell; the fourth is that of a conch; the fifth is that of a lute; the sixth is the sound of cymbals; the seventh is the tune of a flute; the eighth is the voice of a drum (*Bherī*); the ninth is the sound of a double-drum (*m[daṅga]*); and the tenth is the sound of thunder.

According to Uma Samhita cited in Mahāyogavijñāna leaving nine kind of sound practitioner should concentrate only the sound of Om which is the subtlest sound.

*nava úabda parityajya omkārāntu samāūrayet / (umā sarñhitā - 49)*

Swami Rāma says in his book 'choosing a path' that out of ten types of Nāda, Anāhata sound is resembles the constant sound of a prolonged "OM". This is the sound that captures the heart of the nāda student. After hearing many sounds practitioner has to concentrate he mind on the most subtlest sound and by practicing on this sound finally he listen no sound i.e. his mind get merged in the Brahma. Then he feels nothing. He remains as if dead. This is the highest state of Yoga. Rājayoga, Samādhi, Unmani, manonmani, Amaratva, Laya, Tattva, úunyāúunya, Parampada, Amanska, Advaita, Nirālama, Niranjana, Jīvanamukta, Sahaja and Turyā are synonymous of this state. Nature of Yogi who have achieved this state, has been explained at the end of Nādabindīpanīcad as a yogi is considered in the highest state of consciousness (Turyā), whose gaze is fixed without an object, breath is steady without effort and the mind is stable without any object of concentration (NUB-56) and the best means to achieve this state if Nādānusandhāna.

### Stage of Nādānusandhāna

There are four stages of Nādānusandhāna which are ārambhāvasthā, ghaṭāvasthā, paricayāvasthā and niṣpattyāvasthā. In ārambhāvasthā, brahmagranti is pierced and an unbridled joy is felt. In this stage a divine Anāhata sound is heard. In ghaṭāvasthā the Prāna vāyu courses through the middle path of the body. In this stage vicnugranti is pierced and various sounds like that of kettle drum are heard. In paricayāvasthā prāna reaches the great space in Ājna chakra situated between the eyebrows (mahāúunya) and the supreme bliss is experienced. At this stage a sound of a specific kind of durm (mardala) is heard. In niúpattyāvasthā, rudragrathi is pierced and prāna reaches highest center for meditation (śarvapītha). At this stage a sound of well tuned Vīnā is heard. At this stage the chitta remains in its own state without any modification. This stage has been called Rājayoga by Yogi Swātmārām.

### Effects and Benefits

According to HaAsopnicad, hearing of different kinds of nāda, different effects are seen on the body of practitioner. When one listen the first sound his body feels a tingling sensation in the body. While hearing the second sound he feels breaking down of the body, hearing the third sound body perspires, hearing the fourth sound head trembles, hearing the fifth sound nectar oozes out from the (candra situated in) palate region, hearing the sixth sound he enjoys (the taste) nectar, by hearing the seventh sound he becomes knower of mysterious knowledge, by hearing the eighth sound he attains the vāksiddhi, by hearing the ninth sound he attains divine eye sight and the ability to make his body invisible and by hearing the tenth sound he attains the state of his oneness with supreme reality (Brahma).

*prathame cīncinīgātram dvītiye gātrabhañjanam!  
trītiye svedanam yāti caturthe kampate úirañ //18//  
pañcame sravatī tālū cacmhe'm[ta nicevanam /*

*saptame gū avijñanam parā vācā tathācmmē //19//  
adṛaṣyam dehaṁ divyam ckcustathamalam /  
daśame param brahma bhavedbrahmatmasannidhau //20// – Hamsopaniṣad-*

According to Hathapradīpikā, with the practice of nādānusandhāna practitioner receives many blissful experiences. He acquires lustrous body, a natural fragrance and freedom from diseases. In *ghaṭāvasthā* he becomes unshakable and his knowledge increases. Further in *paricayāvasthā* highest level of bliss is experienced and he becomes free from imbalances of humours, pain, old age, diseases, hunger and sleep. Ultimately in *niṣpattyāvasthā* yogi attains the state of Rājayoga where only chitta remains alone without any object of concentration.

Hathapradīpikā describes ultimate result of nādānusandhāna as follows:

*sadā nādānusandhānāt kṣiyante pāpasancayah /  
nirañjanivilīyete niścitam cittamarutau //(H.P. – 4/105)*

*i.e.* By constant practice of nādānusandhānā accumulated evil is destroyed and chitta and prāna verily get merged in supreme reality (Chaitanya Brahman).

At this stage of dissolution of mind in *brahman* Yogi do not hear any sound of conch, or drum etc. His body becomes like a log wood because of his *unmani avasthā*. He does not feel heat or cold, joy or sorrow. The mind becoming insensible to the external impressions becomes one with the sound as milk with water and then becomes rapidly absorbed in Chidākasa. Just as the bee drinking the honey alone does not care for the odour so also the Chitta, which is always absorbed in the inner sound, does not long for sensual objects, as it is bound by the sweet smell or Nada and has abandoned its flitting nature.

## Conclusion

Thus with this detail description it becomes clear that Nādānusandhāna is an important practice of Nātha tradition. Yogi Svātmārām says it is considered to be suitable for even for the incompetent who is incapable to attaining the knowledge of Supreme reality. That's why it has been considered foremost among all means of Laya. Even Its practice seems easy but it requires moderate life style and regular practice in the guidance of a competent Yoga Guru. If other practices of Hathayoga have been perfected then within fifteen days Yogi attains the great happiness with the practice of nādānusandhāna. Initial practices of Hathayoga like Satkarma, Asana, Prāṇāyāma, Mudrā and Bandha are helpful in this practice.

In other ways nādānusandhāna is a practice for regulation of mind. By its practice mind comes perfectly under control of the practitioner as different Yogis proclaims. Since, it has great influence over mind, so its practice may be fruitful for the cure of mental disorders. At physiological level it requires more scientific research about the physiology of the sounds heard during nādānusandhāna and its effect on physical and mental level. For this purpose, both the scientists and true Yogi will have to do work in and with understanding. Then the results that

will come out will be beneficial for mankind and exciting for the new practitioner of nada. Only by this way the hidden science behind nādānusandhāna can be revealed.

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## BENEFICIAL EFFECTS OF IYENGAR YOGA IN PATIENTS WITH STRESS, STRESS-RELATED DISORDERS AND CARDIOVASCULAR RISK – IMPLICATIONS OF RECENT RESEARCH

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### ABSTRACT

*Emotional distress is an increasing public health problem and related to a series of stress-related complaints, e.g. chronic pain syndromes and cardiovascular disease. Iyengar yoga has been claimed to induce stress reduction and empowerment in practicing subjects. We aimed to evaluate potential effects of Iyengar yoga on stress, stress-related complaints, psychological outcomes and atherosclerotic risk in a series of studies with distressed patients. Two controlled prospective studies were conducted in self-referred female subjects who perceived themselves as emotionally distressed. In the first study n=16 subjects attended two 90-min Iyengar yoga classes weekly for 12 consecutive weeks and the effects were compared to a waiting list control. In the second study n=72 females stressed subjects were randomized to intensified Yoga (twice weekly), moderate Yoga (one class per week) or waiting list control. In a third study 30 subjects were randomized to very intensified yoga (two and more classes per week) and compared to waiting list. Outcomes in the first two studies included a battery of psychological and quality-of-life assessment tools and the severity of complaints. In the third study, additional markers of cardiovascular risk and endothelial function (Flow-mediated-vasodilation, FMD) were measured. In the first study, women who participated in yoga-training demonstrated clear and significant improvements in perceived stress, emotional well-being, quality of life and complaints (chronic pain, head ache). In the second study both yoga groups (moderate and intensified) showed comparable and significant improvements in psychological well-being, stress-symptoms and quality of life compared to waiting list controls. In the third study Iyengar yoga participants showed improved parameters of cardiovascular risk factors, results of FMD are currently analyzed. Iyengar yoga seems to be a highly effective intervention for subjects that suffer from stress, stress-related syndromes/disorders and chronic orthopedic or neurological pain. Moreover, it is a promising therapy in the prevention and treatment of cardiovascular disease.*

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**L**arge numbers of Americans and Europeans have recently adopted the practice of yoga for its proposed health benefits. By 1998, an estimated fifteen million, mostly female American adults, had used yoga at least once in their lifetime, and 7.4 million reported practising yoga during the previous year. Featured in the lay press yoga continues to be marketed as a method to empower well-being and to reduce stress ("Power-Yoga"). Indeed, some health professionals refer their patients to Yoga teachers for help in managing a variety of stress-related ailments. Of the many styles of yoga taught in the US and Europe, Iyengar yoga is the most prevalent (2) and promising regarding its clinical efficacy. It is based on the teachings of the yoga master, B.K.S. Iyengar, who has applied yoga to many health problems, using a system descending from Ashtanga yoga.

A number of controlled studies exist on the effectiveness of yoga. These investigations include such conditions as osteoarthritis, carpal tunnel syndrome, multiple sclerosis, bronchial asthma, hypertension, irritable bowel syndrome, mild depression and lower back pain. Five of these studies evaluated Iyengar yoga and reported positive results. However, little is known about the putative impact of Iyengar yoga on distress, stress-related disease and cardiovascular risk. As recent research has emphasized the negative impact of mental distress on health, i.g. cardiovascular health, we undertook a series of studies to examine the clinical effects of a 8- to 12-week Iyengar yoga program in distressed subjects with stress-related disorders and cardiovascular risk.

## Methods

Two controlled prospective studies were

conducted in self-referred female subjects who perceived themselves as emotionally distressed.

The first study is separately published (Michalsen et al., *Medical Science Monitor* 2005). In brief, n=16 subjects attended two 90-min Iyengar yoga classes weekly for 12 consecutive weeks and health-related effects were compared to a waiting list control.

In the second study n=72 female stressed subjects were randomized to intensified Yoga (twice weekly), moderate Yoga (one class per week) or a waiting list control. In this study we aimed to test the efficacy of Iyengar yoga on stress-related complaints and diseases, and to evaluate if this form of yoga is only effective if practiced on a high-intensity level.

In a third study, male and female 30 subjects were randomized to an intensified Iyengar yoga program (two and more classes per week) and compared to waiting list.

Outcomes in the first two studies included a battery of psychological and quality-of-life assessment tools and the severity of complaints. Moreover, levels of salivary cortisol were measured before and after yoga classes, and, before and after the 3 month programs. In the third study, additional markers of cardiovascular risk (blood lipids, blood pressure) and endothelial function (Flow-mediated-vasodilation, FMD) were measured.

## Results

The results of the first study are reported separately (see Michalsen et al. 2005). In brief, the great majority of women who participated in yoga-training demonstrated clear and significant improvements in perceived stress, emotional well-being, quality of life and

complaints (chronic pain, head ache) leading to very high effect sizes of Iyengar yoga regarding the overall health effects.

Iyengar yoga induced improvement of depression and anxiety scores up to 50% and 30%, respectively, well-being improved by 65% and sleep by 50%, together indicating a substantial effect of this yoga form on psychological outcome. Moreover, cortisol levels dropped significantly after a 90 min Iyengar training class.

yoga groups were not as great as preplanned. The results of the specific questionnaires of this study are summarized in table 1:

Finally, there were no adverse effects associated with yoga practice for all subjects and the majority of subjects wanted to continue with Iyengar yoga.

In the third study we found a significant decrease of blood pressure and heart rate after a 8-weeks high-intensity Iyengar yoga training.

Table 1. Outcomes: Group 1 and Group 2 = yoga; Group 0 = wait list control

	Group 0	Group 1	Group 2	1 vs 0	2vs0	2 vs 1
Cohen Stress	-0.3	3.0	2.3	0.006	0.056	ns
Hostility	-0.5	-11	-8.5	0.001	0.01	ns
Depression	-0.6	-9.5	-10.1	0.016	0.037	ns
Fatigue POMS	-1.3	-3.4	-1.9	0.001	0.01	ns
Anxiety	-2.3	-9.4	-9.3	0.008	0.027	ns
Anger	-0.2	-1.4	-1.9	0.004	0.003	ns
Symptoms	-0.2	-05	-03	0.006	ns	ns

In the second study both yoga groups showed clear and highly significant improvements of quality-of-life, body symptoms as back pain, headache or sleeping disturbances. Specifically, perceived stress (Cohen Stress Scale), hostility, depression, fatigue (assessed by profile of mood states, POMS), anger, and a global score of health symptoms were significantly improved in both groups compared to a waiting list control group. Between the two yoga groups we found no significant differences. However, also the group that was scheduled to have only one 90-minute Iyengar Yoga class per week started to practice yoga several times a week at home. Therefore, training differences between both

Blood lipids were not altered. Results of endothelial function are currently analyzed.

### Conclusions

The demonstrated marked reduction in perceived stress and related anxiety/depressive symptoms and the improvements of quality-of-life, cardiovascular risk factors and general well-being in our yoga practising participants are of clear clinical importance. In view of its safety and low costs, further research should evaluate the value of Iyengar yoga for the prevention and treatment of disease, e.g. stress-related disease and cardiovascular disorders.



## प्राणायाम के प्रभावों पर प्रमाण युक्त अध्ययन – एक समीक्षा

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### परिचय

संसार में योग हजारों वर्ष पुरानी भारतीय सांस्कृतिक व आध्यात्मिक विद्या है और इस योग के क्षेत्र में सृष्टि के आदि काल से भारत के अनेकों ऋषियों का योगदान रहा है। योग शब्द युज् धातु से बना है। जिसका अर्थ होता है जोड़ना या मिलाना। आत्मा और परमात्मा के सम्मेलन की अद्वैतानुभूति ही योग है। योग के मार्ग द्वारा समाधि अवस्था में पहुंचने का प्रयास किया जाता है। यह प्रयास वैराग्य तथा अभ्यास द्वारा चित्तवृत्तियों की एकाग्रता से सम्भव होता है। एकाग्रता, चित्तवृत्तियों के निरोध से सम्भव होती है। शास्त्रों में भी कहा है 'योगश्चित्तवृत्ति निरोधः' इसका अर्थ है चित्त की वृत्तियों का बाहरी संसारिक विषयों में न भटकना और शांत हो जाना ही निरोध है। जब चित्तवृत्तियों का पूर्ण निरोध हो जाता है तो उस अवस्था को समाधि कहते हैं। यही योग है।

आज के युग में विज्ञान की कसौटी पर यह साबित हो चुका है कि व्यायाम न करने से शरीर के अन्दर मल जम जाता है जैसे लाईमफास्फेट, मैग्नेशिया आदि। आयु के बढ़ने के साथ-साथ मल भी बढ़ता रहता है। इस मल के जमने से नसें व रक्त नलिकाएं मोटी होकर सिकुड़ जाती हैं। जिससे मस्तिष्क में

रक्त संचार धीमा हो जाता है, स्मरण शक्ति कम हो जाती है और भ्रम, चिंता, चिड़चिड़ापन आदि विकार उत्पन्न हो जाते हैं। योग में उल्लेखित अनेकों विधियों द्वारा इस मल को शरीर से बाहर निकाल कर हम शारीरिक और मानसिक स्वास्थ्य प्राप्त कर सकते हैं।

शरीर के इन द्विजातीय द्रव्यों की मात्रा बढ़ने से निर्जीवता व निर्बलता बढ़ने लगती है। योगिक क्रियाए करने से ये विकार दूर हो जाते हैं, शरीर स्वस्थ हो जाता है, आन्त्रों पर गहरा प्रभाव पड़ता है, जिससे उदर की अपचन, गैस, विबन्ध, उदरशूल आदि रोग नष्ट होते हैं। योगिक क्रियाए करने से चेहरे पर कांति, शरीर में बल, मन में उत्साह और बुद्धि में शक्ति का विकास होता है।

हमारे शरीर में अनेक ग्रन्थियाँ होती हैं जिनका स्राव जो हमें स्वस्थ व निरोग रखने में महत्वपूर्ण कार्य करता है। गले की थाइराइड व पैराथाइराइड ग्रन्थियों से निकलने वाले रस पूर्ण मात्रा में न होने से शरीर का पूर्ण विकास नहीं हो पाता और युवकों के असमय में ही बाल गिरने लगते हैं तथा शरीर में प्रसन्ता नहीं रहती। योगासन के द्वारा शरीर की विभिन्न ग्रन्थियों को सजग करके पर्याप्त मात्रा में रस देने के योग्य बनाया जा सकता है।

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शरीर को स्वस्थ रखने में प्राणायाम राम-बाण का कार्य करते हैं। जब विजातीय द्रव्यों के बढ़ जाने से शरीर के अंग उन्हे बाहर निकाल पाने में असमर्थ होता है तो रोग का आरम्भ होता है। इन विजातीय द्रव्यों को बाहर निकालने के लिए प्राणायामों का उपयोग करके अपने आपको स्वस्थ बनाया जा सकता है।

यद्यपि प्राण एक है लेकिन मानव शरीर में स्थान और प्रभाव के आधार लेकिन प्राण को पांच उपभागों में बांटा जाता है। इन पाँचों उपभागों को पंचप्राण कहा जाता है। जो निम्न है:-

1. **प्राण:** यह कंठ से हृदय तक व्याप्त है। यह प्राण शक्ति श्वास को नीचे खींचने में सहायक होती है।
2. **अपान:** यह मूलाधार चक्र के पास स्थित है। यह वायु बड़ी आन्त्र को बल देती है और मल-मूत्र के निष्कासन में सहायक होती है।
3. **समान:** यह नाभि से हृदय तक रहने वाली वायु है। यह प्राण शक्ति पाचन संस्थान तथा उनसे निकलने वाले रसों को उत्प्रेरित और नियंत्रित करती है।
4. **उदान:** कंठ और मस्तिष्क तक रहने वाली वायु को उदान कहते हैं। इस प्राण शक्ति द्वारा कंठ के ऊपर के अंगों का नियंत्रण होता है। इसके अभाव में हमारा मस्तिष्क ठीक से कार्य नहीं कर पाता और बाह्य जगत के प्रति हमारी चेतना नष्ट हो जाती है।
5. **व्यान:** यह वह प्राण शक्ति है, जो संपूर्ण शरीर में व्याप्त है। इसका मुख्य स्थान स्वाधिष्ठान-चक्र है। यह शरीर की अन्य शक्तियों और प्राण वायु में सहयोग स्थापित करती है और सारे शरीर

की गतिविधियों का नियमन और नियंत्रण करती है।

शास्त्रों में अनेकों प्रकार के प्राणायाम उल्लेखित हैं। लेकिन मुख्य नौ ही प्राणायाम हैं जो प्रचलित हैं।

- अग्निसार
- भस्त्रिका
- शीतकारी
- उज्जायी
- नाड़ी शोधन
- कपाल भाति
- शीतली
- सूर्यभेदी
- भ्रामरी

“तस्मिन् सति श्वास प्रश्वासयोर्गति विच्छेदः प्राणायाम” (योग दर्शन 2/49) अर्थात् आसन के सिद्ध हो जाने पर श्वास प्रश्वास की गति को यथाशक्ति नियंत्रित करना प्राणायाम कहलाता है।

योग विद्या के अन्दर प्राणायामों का शरीर के स्वास्थ्य पर अच्छा प्रभाव पड़ता है। बहुत से लोग प्राण का अर्थ श्वास या वायु समझते हैं। और प्राणायाम का अर्थ श्वास लेने व छोड़ने का व्यायाम समझते हैं। लेकिन वैज्ञानिक तरीके से देखा जाए तो प्राण वह शक्ति है जो वायु में क्या विश्व के समस्त सजीव और निर्जीव पदार्थों में व्याप्त है। माना कि प्राणायामों का संबंध श्वास द्वारा ली जाने वाली वायु से है, किन्तु वह वायु मात्र नहीं है, उसके अन्दर निहित प्राण शक्ति (Vital Power) है। इसलिए जब किसी की मृत्यु होती है तो हम कहते कि उसके प्राण निकल गए। वायु और उसमें अन्त निर्हित प्राण की इस भिन्नता को हमें प्राणायाम के प्रसंग में ध्यान में रखना चाहिए। इस दृष्टि से प्राणायाम का शाब्दिक अर्थ हुआ प्राण का आयाम करना अर्थात् विस्तार करना। प्राणायामों का मुख्य उद्देश्य शरीर में व्याप्त प्राण शक्ति को उत्प्रेरित, संचारित, नियंत्रित, नियमित और संतुलित करना है। ऋषि मनु ने प्राणायामों के लिए कहा है “दहयन्ते ध्यायमानानां धातूनाहि यथा मलाः। तथेन्द्रियाणा

**दहयन्ते दोषाः प्राणस्थ निज्यहात् ।।”** अर्थात् जैसे अग्नि से धौंके हुए स्वर्ण आदि धातुओं के मल नष्ट हो जाते हैं, उसी प्रकार प्राणायाम करने से इन्द्रियों के मल नष्ट हो जाते हैं।

### प्राणायामों का वैज्ञानिक आधार

आज का युग वैज्ञानिक युग है। माना कि योग हजारों वर्ष पुराना और प्रभावशाली है लेकिन आज का मनुष्य प्रत्येक चीज को वैज्ञानिक आधार पर जांचना व परखना चाहता है। अनेकों वैज्ञानिक प्राणायामों पर बहुत लम्बे समय से वैज्ञानिक विश्लेषण करने में लगे हुए हैं जिनके परिणाम भी आशाओं के अनुरूप आ रहे हैं।

श्री रामदेव जी ने प्राणायाम जैसे व्यायाम के द्वारा ऑक्सीजन को नैनों लैवल पर शरीर के तमाम प्रतिक्रियाओं के लिए उपयोग किया है। संपूर्ण ब्रह्मांड का निर्माण पृथ्वी, अग्नि, वायु, जल, व आकाश तत्वों के संघात से हुआ और इन पांच तत्वों के मूल में भी एक तत्व ऐसा है जो सर्वत्र विद्यमान है और वह है ऑक्सीजन।

प्राणायाम की प्रक्रिया के द्वारा हम बिना किसी शारीरिक श्रम (Muscular exercises) के वेन्टीलेशन आयतन (Volume of Ventilation) को सामान्य से दस गुना बढ़ा सकते हैं। जब हम शारीरिक श्रम को बढ़ाते हैं तो शरीर को अत्याधिक आक्सीजन की आवश्यकता होती है जबकि प्राणायाम प्रक्रिया से कार्बन डाई आक्साइड की तुलना में आक्सीजन का अनुपात बढ़ाया जा सकता है जिससे रक्त शोधन प्रक्रिया के पश्चात बनी ऊर्जा (ए.टी.पी.) द्वारा उचित पोषण होता है। इस प्रकार प्राणायाम की प्रक्रिया से कोशिकाओं और अंगों में होने वाले नेक्रोसिस (Necrosis) या क्षरण (Degeneration) की प्रक्रिया को रोका जा सकता है।

### कपालभाति प्राणायाम

कपालभाति प्राणायाम में सामान्य श्वास तथा बलपूर्वक निश्वास कराया जाता है। बलपूर्वक निश्वास से महाप्राचीन पेशी व अमाशय पेशियों में संकुचन व आंकुचन क्रिया होती है तथा कपाल भाति से महाप्राचीरा पेशी पर दबाव पड़ता है। इस क्रिया द्वारा शिरागत रक्तदाब बढ़ जाता है तथा हृदय में रक्त बलपूर्वक वापस आता है। परिणामस्वरूप हृदय को अभूतपूर्व लाभ होता है। प्राणायाम की क्रिया को हृदय स्पन्दन की गति के समान किया जाता है। जिससे धमनियों में स्पन्दन पैदा होता है तथा धमनियों में उपस्थित अवरोध दूर हो जाते हैं तथा नियमित प्राणायम से अवरोध पुनः उत्पन्न नहीं होता।

### अनुलोम-विलोम प्राणायाम

अनुलोम-विलोम प्राणायाम से दोनों Brain Hemispheres की क्रिया में संपूर्ण सामजस्य स्थापित हो जाता है। इस अवस्था में दोनों नासाच्छिद्रों में से प्रविष्ट होने वाली प्राणवायु हेतु संतुलन स्थापित हो जाता है। मतिष्क तंत्रिका द्रव्य (Cerebro Spinal Fluid) का संचरण अंतःश्वास (Inhalation) की स्थिति में सुषुम्ना काण्ड (Spine) से मस्तिष्क की तरफ होता है जबकि बाहिःश्वास (Exhalation) की स्थिति में मतिष्क से सुषुम्ना काण्ड की तरफ होता है।

प्राणवायु के बहाव में सामजस्य से मस्तिष्क तंत्रिका द्रव्य के संचरण की स्थिति साम्य अवस्था में आ जाती है। इस साम्यता से शरीर के समस्त कोशिकाओं, उत्तकों तथा अंगों को जीवनीय ऊर्जा (Vital Energy) का सही वितरण होता है जिससे सभी अवयव सुचारु रूप से कार्य करते हैं। अनुलोम-विलोम प्राणायाम से रक्त में कार्बन डाईआक्साइड की सान्द्रता का नियंत्रण भी होता है। रक्त में CO<sub>2</sub> सान्द्रता की कमी से, रक्त

अत्यधिक अम्लयन युक्त (Oxygenated) होकर घातक रोगों को पैदा कर सकता है। रक्त में CO<sub>2</sub> की सही मात्रा से मस्तिष्क में न्यूरोपेप्टाइड्स का उत्पादन नियमित रूप से होता है। इसी आधार पर हम कह सकते हैं कि कैसे अनुलोम-विलोम प्राणायाम जटिल रोगों को दूर करता है।

### भस्त्रिका एवं कपालभाति प्राणायाम

इन प्राणायामों से पैंक्रियाज पर पड़ने वाले दबाव और पैंक्रियाज के स्रावों को उत्तेजित करने वाले केन्द्रों के उत्तेजित होने से इन्सूलिन की उपयुक्त मात्रा का स्राव प्रारम्भ हो जाता है फलस्वरूप रक्त शर्करा स्तर में सामान्यता आनी प्रारम्भ हो जाती है। जिन रोगियों की पैंक्रियाज की कोशिकाओं का क्षरण प्रारम्भ हो चुका है उनको उचित मात्रा में ऑक्सीजन की प्राप्ति होने से वे धीरे-धीरे क्रियाशील होने लगती हैं और इन्सूलिन का स्राव होने लगता है अतः इन्सूलिन आश्रित रोगियों को भी प्राणायाम और योग की क्रियाओं के अभ्यास से सकारात्मक लाभ मिलता है।

### विचार-विमर्श

बेहानन (1937) ने कहा कि उज्जायी प्राणायाम के दौरान 24.5 प्रतिशत तथा भस्त्रिका प्राणायाम के मध्य 18.5 प्रतिशत तक ऑक्सीजन उपभोग बढ़ जाता है। इसी प्रकार माइलस (1964) ने उज्जायी तथा भस्त्रिका प्राणायाम तथा एक अन्य उच्च आवृत्ति की योग श्वसन क्रिया जिसे कपालभाति कहा जाता है के दौरान ऑक्सीजन उपयोग की भी जांच की। उज्जायी के माध्यम 32 प्रतिशत, भस्त्रिका में 20 प्रतिशत तथा कपालभाति में 14 प्रतिशत ऑक्सीजन उपभोग में वृद्धि हुई। उज्जायी तथा भस्त्रिका प्राणायाम के बाद श्वसन दर 3 सांस प्रति मिनट बढ़ गया। जब कि कपालभाति के बाद 4 सांस प्रति मिनट बढ़ गया। एक

व्यक्ति जिसने विभिन्न ऊंचाई तलों पर उज्जायी प्राणायाम का अभ्यास किया, समुद्रतल से 520 मीटर की ऊंचाई पर उज्जायी प्राणायाम के दौरान 9 प्रतिशत ऑक्सीजन उपभोग में वृद्धि बतायी गई थी। (राव 1968) समुद्रतल से 3800 मीटर ऊंचाई पर 16 प्रतिशत अधिक ऑक्सीजन उपयोग भी पाया गया।

भार्गव गोगेट तथा मास्कोरेनहास ने (1988) 20 स्वस्थ स्वयंसेवकों पर श्वास रोकने के स्वतः अनुक्रिया पर अध्ययन किया। श्वास रोकने की अवधि (Breath Holding Time), हृदय गति (Heart Rate), प्रकुंचनीय रक्त दबाव और अनुशिथिलन रक्त दबाव (Systolic & Diastolic Blood Pressure), विद्युतीय त्वचा प्रतिरोध (Galvanic Skin Resistance), को श्वास रोक कर स्वासोच्छ्वास के विभिन्न स्तरों पर रिकार्ड किया गया। उपर्युक्त बताए गए पैरामीटर्स पर प्रारंभिक रिकार्डिंग सभी 20 लोगों ने चार सप्ताह तक नाड़ीशोधन प्राणायाम का अभ्यास किया। चार सप्ताह के बाद उन्हीं पैरामीटर्स को रिकार्ड किया गया था तथा परिणाम की तुलना की गई। हृदय धड़कन की आधार रेखा तथा रक्त दबाव (प्रकुंचनीय रक्त दबाव तथा अनुशिथिलन रक्त दबाव) घटे हुए थे तथा प्राणायाम के पश्चात श्वसन काफी हद तक कम हो गया था। इस प्रकार प्राणायाम श्वसन अभ्यास, श्वास रोकने की स्वतः अनुक्रिया को परिवर्तित करती है, सम्भवतः बेगस तंत्रिका (Vagus nerve) के स्तर (Tone) को बढ़ाकर तथा अनुकम्पी विसर्जन को घटाकर। प्राणायाम में कुम्भक श्वसन चक्र एक महत्वपूर्ण स्थिति मानी जाती है। कुम्भक के दो प्रकार हैं लघु कुम्भक तथा दीर्घ कुम्भक। रोथ स्पाईरोमीटर (Spirometer) के माध्यम से श्वसन की क्लोज्ड सर्किट विधि का प्रयोग करके ऑक्सीजन उपयोग का अध्ययन किया गया। प्राणायाम के पूर्व, प्राणायाम के मध्य तथा प्राणायाम के पश्चात की श्वास अवधि की गणना की

गई। परिणामों ने स्पष्ट कर दिया कि लघु कुम्भक में 52 प्रतिशत ऑक्सीजन उपयोग की महत्वपूर्ण वृद्धि थी, जबकि इसके विपरीत दीर्घ कुम्भक में ऑक्सीजन उपभोग 19 प्रतिशत की महत्वपूर्ण गिरावट थी। (टेलर एवं देसीराजू) एक व्यक्ति जो उज्जायी तथा भस्त्रिका प्राणायाम का अभ्यास करता है उनके मध्य मानसिक निष्क्रियता को जागृत करने के संबंध में अध्ययन किया गया। अध्ययन ने प्रकट किया कि एनए तरंगों के विस्तार में वृद्धि हुई थी तथा एनए तरंगों की निष्क्रियता में कमी आई थी। प्राणायाम के समय चेतक एवं प्रमस्तिष्क के प्रारंभिक सूचना प्रवर्धन में परिवर्तन के सूचक के रूप में व्याख्या की गई। बुड (1993) ने 21-76 वर्ष की आयु के 71 सामान्य स्वयंसेवकों की शारीरिक एवं मानसिक ऊर्जा तथा सकारात्मक एवं नकारात्मक मूड की दशा (चित्रवृत्ति/भावदशा) का अध्ययन तीन भिन्न विधियों शिथिलन, वीक्षण (कल्पना में किसी वस्तु का देखना) तथा यौगिक श्वसन के साथ फैलाव (प्राणायाम) पर किया। उसने बताया कि अन्य दो विधियों की तुलना में प्राणायाम से मानसिक एवं शारीरिक ऊर्जा के बोध तथा फुर्ती एवं उत्साह की अनुभूति में वृद्धि होती है।

प्रशिक्षणों से यह भी पता चलता है कि प्राणायामों के द्वारा रक्त को ऑक्सीजन की अच्छी आपूर्ति होती है जिससे एड्रीनलीन, ग्लूकोस, वसा, फैटीएसिड्स का अत्यधिक जारण होकर ऊर्जा निर्माण में व्यय हो जाता है। जिससे रक्त के जमने (थ्रम्बोसिस), हृदय धमनी अवरोध (Coronary arteries disease) आदि रोगों में अत्याधिक लाभ मिलता है।

## निष्कर्ष

हमारे शरीर की कोशिका से लेकर प्रत्येक अवयव को पूर्ण मात्रा में ऑक्सीजन देकर तथा शरीर के आन्तरिक अंगों का व्यायाम कराकर व एक विधेयात्मक चिन्तन

से सम्पूर्ण आरोग्य पा सकते हैं। भस्त्रिका व अनुलोम विलोम आदि प्राणायाम के द्वारा शरीर के रक्तकणों को पूरा ऑक्सीजन दिया जाता है एवं कपालभाति आदि से शरीर के आन्तरिक अवयवों को वैज्ञानिक रीति से गति प्रदान कर शक्ति का संचार करते हैं तथा भ्रामरी व उद्गीथ आदि के द्वारा मानसिक स्तर पर श्रद्धा, समर्पण, आस्था, विश्वास व सकारात्मक चिन्तन को जागृत कर हम एक स्वस्थ व चिन्ता मुक्त जीवन बना सकते हैं।

प्राणायाम से जब शरीर के एनावॉलिज्म का स्तर बढ़ता है एवं कैटाबोलिज्म का स्तर निम्न होता है तो एजिंग प्रोसेस (Aging Process) भी कम हो जाता है अर्थात् हम असामयिक बुढ़ापे से बचकर दीर्घायु प्राप्त कर सकते हैं। प्राणायाम के प्रयोगों के वैज्ञानिक परिणामों के प्रमाणों के साथ हम यह कह सकते हैं कि प्राण अर्थात् ऑक्सीजन नामक तत्व जब हमारे शरीर में कुछ निश्चित विधियों द्वारा एक सुनिश्चित समय में सुनिश्चित मात्रा व सही वैचारिक दिशा के साथ जब प्रविष्ट कराया जाता है तो शरीर में स्वतः सकारात्मक परिवर्तन घटित होने लगते हैं और प्राण एक सम्पूर्ण औषध की तरह कार्य करने लगता है।

अतः अन्त में यही कहा जा सकता है कि योग का लक्ष्य स्वस्थ जीवन जीना तथा स्व प्रबोधन प्राप्त करना है। योग में आसन के अभ्यास के माध्यम से शरीर को विभिन्न स्थितियों में रखना आसन तथा ध्यानात्मक तरीके से मस्तिष्क तथा श्वास को केन्द्रित करना है। प्राणायाम, प्राण को नियन्त्रित करता है तथा श्वास नियंत्रण के माध्यम से जीवन शक्ति प्राप्त होती है। अतः एक 30 मिनट का यौगिक एवं श्वसन अभ्यास जो सीखना बहुत आसान है, वरिष्ठ लोगों के लिए भी दोनों मानसिक एवं शारीरिक अनुभूति पर विशिष्ट शक्तिवर्धक प्रभाव डालता है तथा उच्च सकारात्मक चित्रवृत्ति (High Positive Mood) में वृद्धि

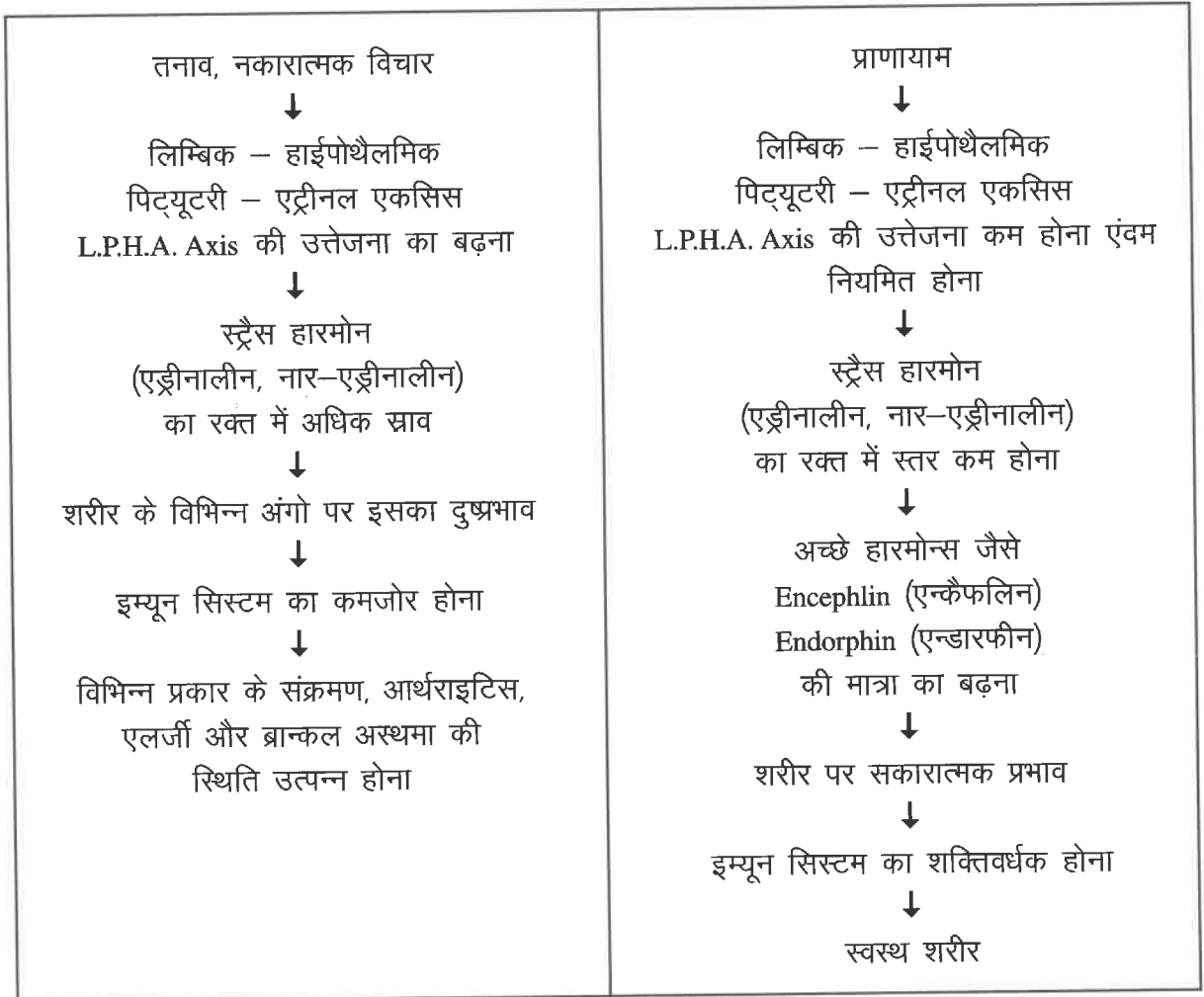
करता है।

डॉ. राधा कृष्णन जी ने भी कहा था कि "हम संसार के घटना क्रम को और समाज में उत्पन्न हो रही उथल-पुथल को अपनी इच्छानुसार नहीं बदल सकते परन्तु हम अपने अन्दर इतना मनोबल अवश्य उत्पन्न कर सकते हैं कि उनका कोई प्रभाव हमें किसी प्रकार भी विचलित न कर सके।

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प्राणायाम का मन, मस्तिष्क एवं शरीर पर प्रभाव



## PHYSIOLOGICAL APPRAISAL OF BSF PERSONNEL BEFORE AND AFTER YOGIC PRACTICE

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### Introduction

It is well established that yogic practice helps in the upliftment of various functions of body and mind. Several reports have been made with regard to its effects on cardiovascular, respiratory, metabolic, hormonal and neural systems (Selvamurthy et al, 1983; Murugesan et al., 2000; Anand & Chinna, 1961; Sinha et al., 2004). Regular yogic practice provides the practitioner with more physical flexibility (Ray et al, 1983), muscle endurance (Ray et al, 1986; Madanmohan et al, 1992), maximal work output and oxygen consumption (Raju et al., 1997; Ray et al., 2001), increased vitality, alleviated psychological stress and reduced cardiovascular risks (Selvamurthy et al, 1983; Ray et al, 2001; Warriar & Gunawan, 1997). Studies on the effects of various yogic postures in terms of oxygen consumption, carbon dioxide elimination, the minute ventilation etc.

(Ray et al., 2000; Brahmachari et al., 1989) have been reported in literature. The results of these studies have revealed that yogic asana besides manifesting broadly similar trends appears to have some degree of specificity in terms of magnitude of influence. Muralidhara & Ranganathan (1982) have reported an improvement in cardiac recovery index after 10 week yoga training.

During the yoga training program of BSF personnel, which was imparted by the 'Morarji Desai National Institute of Yoga' (MDNIY) during February – April 2009, there was a request for participation of DIPAS / CARTY in the scientific study alongwith MDNIY. In this context, a group of cardiovascular and respiratory parameters alongwith performance related parameters were taken to observe the effect of yoga training.

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## Material and Methods

**Participants:** Sixty healthy young adult males ( $n = 60$ ) from the BSF personnel within the age range of 21-33 years and height of  $174.8 \pm 3.52$  cm (Mean  $\pm$  SD) with no previous history of cardiovascular and respiratory disorders, compromised physical health and other ailments, they also did not have any previous exposure to yogic exercises/practices had an uniform pattern daily activity and a fixed energy diet. Their physical characteristics are given in Table 1. Participants were also clinically tested for any psychophysiological disorders. The subjects were administered training in yoga for 3 months. During this period, they were under continuous surveillance and strict discipline throughout the period. The following parameters were recorded before and after the above training period.

**Anthropometric Measurements:** Anthropometric measurements of the subjects were taken with minimal clothing (only inner underwears). Body weight in kilograms was measured using an electronic weighing machine (Delmar, India). The standing body height in meters was measured by means of anthropometer from sole of the feet to the vertex in erect body position. Body Mass Index (BMI) was calculated as the ratio of weight to height squared, as per HLBS Obesity Education Initiative expert panel (National heart lung & blood institute, 1998).

**Resting Parameters:** The resting heart rate (HR) and blood pressure (systolic, diastolic and mean) were recorded using Datascope® Passport Polygraphic recording system after they took rest at least for half an hour in sitting position and for 15 min in supine position.

**Anaerobic Capacity:** Anaerobic capacity of leg was assessed by means of bicycle ergometer

(Monark Ergomedic 894E). All the subjects were informed about the exercise test. Warming up exercise was performed by giving minimal load. The Wingate test (Balke & Ware, 1959) was used to determine peak anaerobic power and anaerobic capacity for leg. The testing device was a mechanically braked bicycle ergometer. After warm up, the subject began pedaling by leg as fast as possible without any resistance. After achieving maximum RPM a fixed resistance as per software predicted weight was applied to the flywheel and the subject continued to pedal "all out" for 30 seconds. They were verbally encouraged throughout the test to continue the exercise till 30 sec. A computerized software device controlled the entire test. Test output was obtained as peak power.

**Muscular Strength (Back Leg Muscle):** To determine the back leg strength, the Back Leg dynamometer (TKK 5402 BACK-D, Japan) scale was mounted on a metal device with a base platform. The subject was asked to hold the bar with alternate grip of one hand forward and one backward. They were asked to lift the bar straight without lifting heels and leaning backward. The better of two recordings was noted in kgs.

**Pulmonary Function test:** Static and dynamic lung function tests were conducted to record Forced Vital Capacity (FVC), Forced Expiratory Volume in 1st second (FEV1), Maximum Voluntary Ventilation (MVV) and Peak Expiratory Flow Rate (PEFR) by spirometric measurement system (COSMED, Italy). The expiratory flow rate was measured by Peak Flow Meter.

**Breathe Hold Time:** Volunteers were asked to sit erect on a stool. They were instructed to



hold breath as long as possible with the nose clipped, immediately following maximal inspiration using both nostrils. During this period they were restrained from inhalation and exhalation strictly. The period for which breathe was hold was noted as breathe hold time using an electronic stopwatch (Runner 2000 Digital). Due surveillance was maintained to avoid intermediate breathing by the volunteers.

**Statistical Analysis:** The data underwent Student's t-test for large ( $n > 30$ ) paired samples. The computed  $t$  was compared to the critical  $t$  scores for different levels of significance. Statistical significance was set at  $P \leq 0.05$ .

## Result

Practices of yogic asanas and pranayama registered promising improvement in physical performance as well as cardinal physiological parameters.

**Anthropometric Measurement (Table 1):** Body weight (kg) and BMI ( $\text{kg}/\text{m}^2$ ) did not manifest any significant change before and after yogic practices, though there was gross trend of reduction in both of them.

**Resting cardiorespiratory profile (Table 2):** Resting Heart Rate (bpm) registered no significant change with variable trend. Resting

**Table 1. Effect of Yogic Practice on Physical Characteristics.**

Parameters	Before Yoga	After Yoga
Body Weight (Kg)	69.6 ± 7.17	67.4 ± 6.41
Body Mass Index ( $\text{kg}/\text{m}^2$ )	22.7 ± 2.31	22.0 ± 1.95

Values are expressed as Mean ± SD.

**Table 2. Effect of Yogic Practice on Cardiorespiratory Profile.**

Parameters	Before Yoga	After Yoga
Heart Rate (bpm)	62.1±7.50	62.6±8.47
Systolic Blood Pressure (mmHg)	124.9±8.71	120.6±12.13*
Diastolic Blood Pressure (mmHg)	74.9±7.10	74.7±8.20
Mean Blood Pressure (mmHg)	93.7±8.24	89.6±9.14*

Values are expressed as Mean ± SD. \* =  $P < 0.05$  compared to baseline (Before Yoga).

Blood Pressure also showed improvement after yogic practice. The systolic component (SBP) decreased significantly after yogic practice ( $P < 0.05$ ), while diastolic component (DBP) did not show any significant alteration, however, mean component (MBP) again manifested significant decrease ( $P < 0.05$ ).

**Anaerobic Capacity (Fig. 1):** Peak anaerobic power significantly improved after yogic training ( $P < 0.05$ ) as compared to that before training.

**Muscular Strength (Back Length Strength, Fig. 2):** Back Length Strength revealed significant improvement after training ( $P < 0.001$ ).

**Pulmonary Function (Table 3):** Forced Vital Capacity (FVC) did not show any significant change, although a trend in enhancement of Forced Vital Capacity (FVC) was observed. Forced Expiratory Volume in 1st second ( $\text{FEV}_1$ ) also registered a trend of increase after yogic practice; again the magnitude of change

Fig. 1. Effect of Yogic Practices on Anaerobic Capacity.

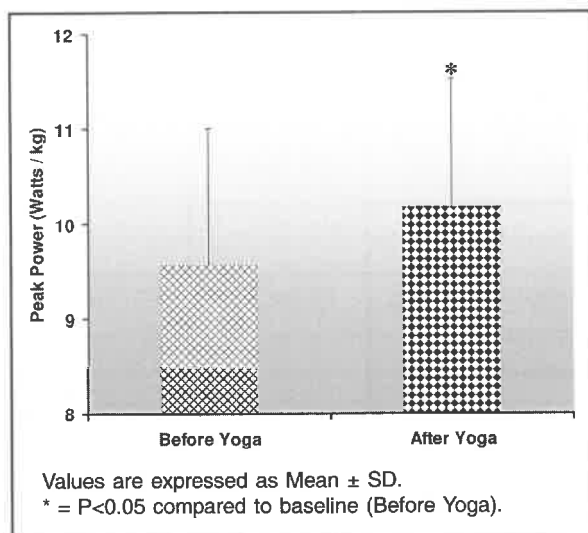


Table 3. Effect of Yogic Practice on Pulmonary Function Test.

Parameters	Before Yoga	After Yoga
Forced Vital Capacity (L)	4.4 $\pm$ 0.42	4.5 $\pm$ 0.41
Forced Expiratory Volume in 1st second (L)	3.7 $\pm$ 0.42	3.8 $\pm$ 0.42
Maximum Voluntary Ventilation (L/min)	154.2 $\pm$ 31.22	170.5 $\pm$ 27.50**
Peak Expiratory Flow Rate (L/min)	593.0 $\pm$ 56.20	610.2 $\pm$ 58.21

Values are expressed as Mean  $\pm$  SD.

\*\* = P<0.01 compared to baseline (Before Yoga).

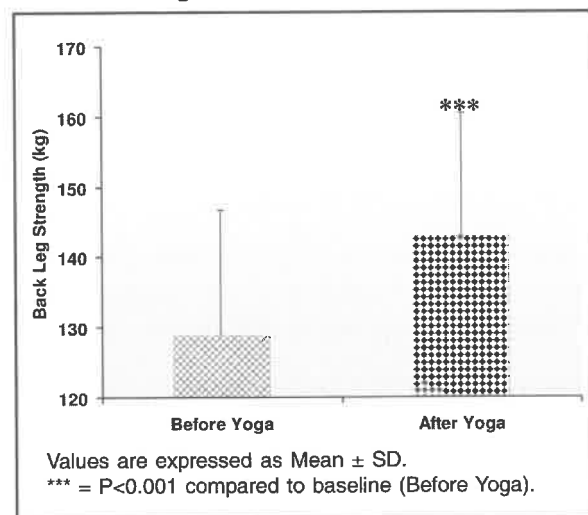
**Breath Hold Time (Fig. 3):** Breath Hold Time (s) increased as result of practice of pranayama and other yogic exercise after the period of yogic training and the improvement was statistically significant (P<0.001).

**Discussion**

Among all the parameters in this study, blood pressure, anaerobic capacity and certain aspects of lung functions showed prominent changes.

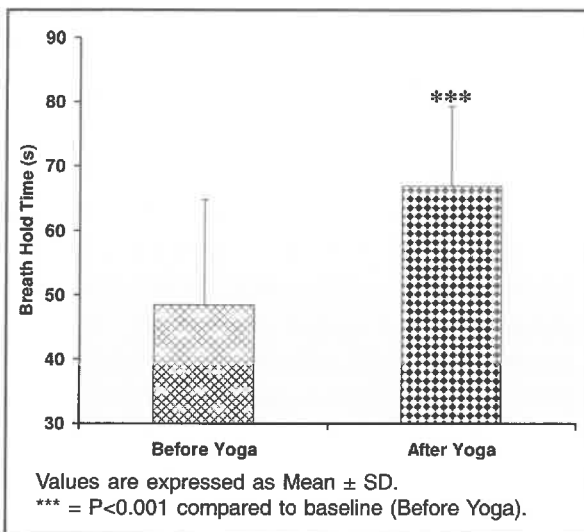
Body weight and Body Mass Index did not show any significant alteration in our study though there was a trend of reduction in the mean values of these two parameters. A possible explanation to this could be that the duration of yogic practice was not sufficient to bring about any significant alteration in body weight and body mass index. The minor fluctuation

Fig. 2. Effect of Yogic Practice on Back Leg Muscle Strength.



was non significant, except Maximum Voluntary Ventilation (MVV) which increased significantly (P<0.01) after yoga training. No other lung function parameters showed significant alteration.

**Fig. 3. Effect of Yoga Practice on Breath Hold Time.**



could be due to the change in diet pattern (spicy nonvegetarian/vegetarian to simple vegetarian) and the total amount of calorie intake per day. There are conflicting reports in body weight changes after yogic exercises in literature – some reporting decrease (Bernardi et al, 2007), while others reporting and increase (Ray et al. 2001). Another possible explanation could be that, the participants in this study were habituated to perform physical exercises as a part of their daily schedule from the very beginning of their entry in the forces.

In our study, heart rate and diastolic blood pressure did not register any significant alteration, while systolic blood pressure and mean blood pressure reduced significantly. From this observation, it could be implied that this particular module of training could control the blood pressure by reducing the SBP only. It has been reported that practice of yogic exercises like asanas and pranayama for 6 months reduced sympathetic activity, thus shifting the equilibrium towards

parasympathodominance (Selvamurthy et al., 1986); which could in turn, be helpful in controlling undue stress-induced sympathetic over activation. Besides this, ventilation, oxygen consumption, mean skin temperature, blood catecholamine, cortisol etc. also showed a trend of parasympathodominance. Telles and Desiraju (1993) also observed the autonomic changes after Brahmakumari's Raja Yoga Meditation after practice of asanas and pranayama.

In this study, the significant improvement in peak power in short term exercise indicates that the yoga trainees by virtue of their yogic practices within this specified short span of training could improve their anaerobic capacity. This might be possible due to the enhanced leg anaerobic capacity by greater ATP and creatine phosphate store in the muscle, in addition to the faster neuromuscular coordination. Bera & Rajapurkar (1993) have reported a significant improvement in anaerobic power as a result of yoga training. However, Balasubramanian & Pansare (1991) have reported that yoga training produces a significant decrease in anaerobic power. The previous studies had inherent methodological problems. This study has taken care of those factors and followed an international standard objective procedure.

It is worthwhile to mention that we found significant improvement in back leg muscle strength after yogic training. A number of reports are available on the effects of Hatha yogic training on physical performance with reference to muscle strength and endurance. Ray et al (1983; 1986) reported improvement in body flexibility and muscular efficiency to a standard task with reduction in EMG built up by practice of yogic exercise. The study by Madanmohan et al (1992) also supported this fact.

It has been reported that yogic practice improves the overall respiratory functions (Bhole et al., 1972; Selvamurthy et al., 1988; Stanescu et al., 1981; Ray et al., 2000). Yogic breathing maneuvers have considerable beneficial effects on respiratory efficacy. It strengthens respiratory musculature. During its practice, the lungs and chest inflate and deflate to the maximum possible extent; and the muscles are made to work to maximal extent. Longer breath-hold time after yoga training by the participants in this study might thus indicate that, yogic breathing maneuvers helped respiratory muscles to get trained to delay the onset of their fatigue, which is also implicated by the significantly increased MVV. The participants possibly also could inhale more amount of air in the lungs, thus making greater amount of oxygen available to the system, which could help in holding the breath for a longer duration. This factor could have been emphatically stressed if the various lung volumes would have increased significantly in this study. As those showed only a marginal increase with no statistical significance, the reason could be something else. Another possibility could be that the participants in this study practiced breath-hold (Kumbhaka) during the yogic breathing maneuvers which might be responsible for the significant improvement in breath hold time after yoga training, by the altered chemoreceptor sensitivity of the subject, resulting in the increased time to reach the breaking point.

### Conclusion

Our study on BSF personnel once again substantiated the benefits of yogic practice in physical and physiological health of the individual. The study showed significant increase in back leg muscle strength and MVV. Systolic

and Mean blood pressure was significantly decreased as expected. Anaerobic capacity and breath hold time also registered significant increase after training in yogic asanas and breathing maneuvers.

This study showed that particular yoga module as administered by MDNIY helped to improve various cardiovascular and other parameters as reported in the literature. Nevertheless, the novelty of this study is that, it also provided findings with thought provoking issue of increased anaerobic muscle power and also the altered chemoreceptive sensitivity, which may have wide applications in various situations.

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## पञ्चासनस्वरूप विमर्श

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\*\*\*कु. सीमा रानी

**कि** सी भी विषय का वर्णन करने से पूर्व सम्बन्धित विषय की पूर्व पीठिका के विषय में ज्ञान करना आवश्यक होता है, इसलिए यहाँ पर "पञ्चासन" के वर्णन से पूर्व आसन की संख्या और आसन शब्द का शब्दार्थ ज्ञात करना आवश्यक प्रतीत होता है।

समस्त प्रकार के आसनों की संख्या चौरासी लक्ष (लाख) है। एक योगविषयक अवधारणा के अनुसार ऐसी मान्यता है कि दृश्यमान सम्पूर्ण जगत् में प्राणियों की योनियों के स्वरूप एवं आकृति विशेष के आधार पर आद्ययोगीश्वर भगवान् पशुपति शिव ने आसनों की संख्या भी चौरासी लाख निर्धारित की है;<sup>1</sup> स्वयं इन समस्त प्रकार के आसनों के ज्ञाता भी भगवान् शिव हैं, जिसके कारण इन्हें योग परम्परा में आदिनाथ की उपाधि से विभूषित किया गया है।

चौरासी लाख आसनों का ज्ञान सर्वसाधारण मानव के लिए सम्भाव्य नहीं हो सकता है इसलिए समस्त चौरासी लाख आसनों में से प्रत्येक एक-एक लाख की संख्या में एक-एक का चयन कर भगवान् शिव ने मानव मात्र के कल्याणार्थ अभ्यास हेतु चौरासी श्रेष्ठ आसनों का वर्णन किया है।<sup>2</sup> योगाङ्गनुभूत इन आसनों को यौगिक ग्रन्थों में कहीं पर प्रथम, कहीं पर द्वितीय और कहीं पर तृतीय योगाङ्ग के रूप में स्वीकृत किया गया है। स्वात्माराम योगीन्द्र कृत हठप्रदीपिका में आसनों का वर्णन प्रथमाङ्गरूप में किया गया है।<sup>3</sup> घेरण्डसंहिताकार ने घेरण्डसंहिता में शोधनकर्म के वर्णनोपरान्त आसन को द्वितीय क्रम में रखा है<sup>4</sup> तथा महर्षि पतञ्जलि कृत योगसूत्रों में अष्टाङ्गयोग के अन्तर्गत आसन को तृतीय क्रम में वर्णित किया गया है।<sup>5</sup>

1. आसनानि च तावन्तो जीवजन्तवः।

एतेषामखिलान्भेदान्विजानाति महेश्वरः।। गो. प. 1/8 एवं गो. श. घे. सं. 2/1

2. चतुरशीतिलक्षाणामेकैकं समुदाहृतम्।

ततः शिवेन पीठानां षोडशोऽंशं शतं कृतम्।। गो. प. 1/9, गो. श. 6, घे. सं. 2/2

3. हठस्य प्रथमाङ्गत्वादासनं पूर्वमुच्यते। ह. प्र. 1/17

4. घे. सं. 1/9

5. यमनियमासनप्राणायामप्रत्याहारधारणाध्यानसमाधयोऽष्टावङ्गानि। पा. यो. सू. 2/46

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\*\*\*जे.आर.एफ. (योग) दार्शनिक साहित्य अनुसन्धान परियोजना, मोरारजी देसाई राष्ट्रिय योग संस्थान, 68 अशोक रोड, नई दिल्ली-110001

किसी भी यौगिक आसन का अभ्यास या उल्लेख करने के पूर्व आसन शब्द का व्युत्पत्ति लभ्य अर्थ जानना नितान्त आवश्यक होता है; जिसका वर्णन यहाँ पर संक्षेप में किया जा रहा है जो इस प्रकार हैं –

आसन शब्द संस्कृत व्याकरणानुसार आस्यते अनेन इति करणे ल्युट् (आस + ल्युट्) अर्थात् आस् धातु में ल्युट् प्रत्यय लगाने पर बनता है; जिसका योगानुसार शाब्दिक अर्थ बैठने की अवस्था या शारीरिक स्थिति आदि है। यह शारीरिक स्थिति निश्चल तथा सुखकारी होनी चाहिए (स्थिरञ्च तत् सुखञ्चेति स्थिरसुखम्)। अथवा शरीर के स्थित होने की प्रक्रिया, अवस्था आदि को योगाङ्गानुभूत आसन की संज्ञा दी गयी है, जो की निश्चल या दीर्घकाल तक चञ्चलता रहित और सुखद होनी चाहिए। जब तक बैठने या स्थिर होने की अवस्था में स्थायित्व की क्षमता न प्राप्त हो तब तक उसे योग का अङ्ग नहीं माना जा सकता, क्योंकि जब तक शरीर में कष्टानुभव प्राप्त होता रहता है तब तक बैठने की किसी भी अवस्था को आसन नहीं माना जा सकता। इसका उल्लेख करते हुए योगसूत्र के व्यास भाष्य पर टीकाकार वाचस्पतिमिश्र जी ने कहा है कि – “येन संस्थानेनावस्थितस्य स्थैर्यसुखं सिद्धयति तदासनम्”<sup>6</sup>। आसन शब्द के अर्थ की परिभाषा देते हुए योगसूत्रकार महर्षि पतञ्जलि ने कहा है कि जो शारीरिक स्थिति स्थिर और सुखद हो वह आसन है।<sup>7</sup> किन्तु योगसूत्रकार ने आसन क्या है?, कौन-कौन से हैं?, उनका क्या नाम है?, उनके कौन-कौन से प्रकार हैं? आदि का वर्णन नहीं किया

है। योगसूत्र के टीकाकार व्यास ने आसनों का नामोल्लेख करते हुए कहा है कि – पद्मासन, वीरासन, भद्रासन, स्वतिकासन, दण्डासन, सोपाश्रयासन, पर्यङ्कासन, क्रौञ्चनिषदासन, हस्तिनिषदासन, उष्ट्रनिषदासन और समसंस्थानासन स्थिरसुखा अर्थात् यथासुख होते हैं। इसी प्रकार के अन्य भी स्थिर सुख आसन होते हैं।<sup>8</sup>

आसनों की संख्या और आसन शब्द का अर्थ ज्ञात करने के पश्चात् यहाँ पर आसन से सम्बन्धित कुछ महत्वपूर्ण बिन्दुओं का वर्णन किया जा रहा है –

आद्ययोगीश्वर भगवान् शिव द्वारा कथित चौरासी लक्ष आसनों में चौरासी मुख्य आसन हैं जिनका संकेत विभिन्न हठयौगिक ग्रन्थों के सहित भारतीय संस्कृति एवं दर्शन परम्परा से अनुबद्ध ग्रन्थों में देखने को मिलता है। किन्तु इसका सर्वाधिक वर्णन हठयोग परम्परा एवं उपनिषद् परम्परा में देखने को मिलता है जहाँ पर आत्मज्ञान प्राप्ति हेतु समस्त आसनों का वर्णन किया गया है। हठयोगान्तर्गत वर्णित आसनों का मुख्य उद्देश्य शरीर को स्वस्थ बनाना तथा शरीर में लघुता (हल्कापन) लाना एवं योगसाधनाभ्यास के लिए उपयुक्त बनाना है। इन चौरासी आसनों की संख्या का प्रतिपादन करते हुए हठरत्नावलीकार ने इनकी एक नामावली प्रस्तुत की है।<sup>9</sup> चौरासी आसनों में भी बत्तीस श्रेष्ठ आसनों का वर्णन घेरण्डसंहिताकार ने किया है।<sup>10</sup> इन सभी आसनों में सर्वश्रेष्ठ चार आसनों का नामोल्लेख अधिकतर ग्रन्थों में वर्णित है यद्यपि इन चार नामों में कहीं-कहीं पर भिन्नता

6. पा. यो. सू. 2/46, व्या भा. पर तत्त्व. वै. टी.

7. स्थिरसुखमासनम्। पा. यो. सू. 2/46

8. पद्मासनं, वीरासनं, भद्रासनं, स्वस्तिकं, दण्डासनं, सोपाश्रयं, पर्यङ्कं, क्रौञ्चनिषदनं, हस्तिनिषदनमुष्ट्रनिषदनं, समसंस्थानं, स्थिरसुखं यथासुखं चेत्येवमादीनि। पा. यो. सू. 2/46 पर व्या. भा.

9. ह. र. 3/9-20

10. तेषां मध्ये विशिष्टानि षोडशोऽंशं शतं कृतम्। तेषां मध्ये मर्त्यलोके द्वात्रिंशदासनं शुभम्।। घे. सं. 2/2



देखने को मिलती है; किन्तु पद्मासन एवं सिद्धासन का वर्णन समस्त योग परम्परा से सम्बद्ध ग्रन्थों में सुगमता से प्राप्त होता है। जिसमें से पद्मासन के स्वरूप का वर्णन यहाँ पर किया जा रहा है जो इस प्रकार है –

पद्मासन शब्द दो शब्दों के योग “पद्म + आसन” से मिलकर बना है। संस्कृत व्याकरण के अनुसार “पद्-मन्” शब्द में “अच्” प्रत्यय लगाने पर (पद् मन् + अच्) पद्म शब्द बनता है, जिसका शाब्दिक अर्थ कमल, जलज पङ्कजआदि है। दूसरा आसन शब्द भी “आस् + ल्युट्” से मिलकर बनता है, जिसके विषय में पूर्व में उल्लेख किया गया है। अतः “पद्म + आसन” शब्द का सम्मिलित स्वरूप पद्मासन है। पद्मासन के अभ्यास में शारीरिक स्थिति पद्म पुष्प के सदृश बनती है, जिसके कारण इस आसन का नाम पद्मासन के रूप में प्रचलित है।

योगाभ्यास परम्परा से सम्बन्धित ग्रन्थों में पद्मासन को कमलासन<sup>11</sup>, बद्धपद्मासन, करपद्मासन, सम्पुटितपद्मासन, शुद्धपद्मासन<sup>12</sup>, अम्बुरुह<sup>13</sup>, अम्बुजासन<sup>14</sup>, सरोरुह<sup>15</sup> आदि नामों एवं भेदों के रूप में भी जाना जाता है।

हठप्रदीपिकाकार स्वात्मारामयोगीन्द्र जी पद्मासन की विधि का उल्लेख करते हुए कहते हैं कि –

वामोरुपरि दक्षिणं च चरणं संस्थाप्य वामं तथा,  
दक्षोरुपरि पश्चिमेन विधिना धृत्वा कराभ्यां दृढम् ।  
अंगुष्ठौ हृदये निधाय चिबुकं नासाग्रमावलोकयेत्,  
एतद् व्याधिविनाशकारि यमिनां पद्मासनं प्रोच्यते ॥

ह. प्र. 1/44

अर्थात् बायीं जांघ पर दक्षिण पादतल को सम्यक् प्रकार से पैर के तलवे को ऊपर की ओर रखते हुए स्थापित करना चाहिए, ठीक इसी प्रकार से दक्षिण जंघा पर वामपादतल को भी स्थापित करना चाहिए। तत् पश्चात् दोनों पैरों के अंगुष्ठों को पश्चिम विधि से दृढ़तापूर्वक पकड़ना चाहिए अर्थात् दक्षिण हाथ को पीछे से ले जाकर बायीं जंघा पर स्थापित पादतल के अंगुष्ठ को पकड़ना चाहिए तथा वाम हाथ को पीछे की ओर ले जाकर दाहिनी जंघा पर स्थापित वामपाद के अंगुष्ठ को पकड़ना चाहिए। हृदय के समीप हनु (चिबुक) को स्थापित करते हुए दृष्टि को नासाग्र पर एकाग्र करना चाहिए। अभ्यासियों की व्याधि का नाश करने वाला यह आसन योगियों के द्वारा पद्मासन कहा जाता है।<sup>16</sup>

पद्मासन की इस उपर्युक्त विधि का यथारूप उल्लेख घेरण्डसंहिता<sup>17</sup>, गोरक्षपद्धति<sup>18</sup>, गोरक्षशतकम्<sup>19</sup>, योगमार्तण्ड<sup>20</sup>, हठरत्नावली<sup>21</sup>, बृहद्योगसोपान<sup>22</sup> सहित विभिन्न ग्रन्थों में देखने को मिलता है।

11. गो. श. 7, यो. मा. 5, गो. प. 1/10, अग्नि पु. 373/1, यो. चू. उप. 3

12. बन्धं करः सम्पुटितंशुद्धं पद्मचतुष्टयम्। ह. र. 3/9

13. हठ. तत्त्व. कौ. 7/22,

14. हठ. तत्त्व. कौ. 7/24

15. हठ. तत्त्व. कौ. 7/25

16. ह. प्र. 1/44 पर ज्यो. टी.

17. घे. सं. 2/8

18. गो. प. 1/12

19. गो. श. 1/9

20. यो. मा. 1/8-9

21. ह. र. 3/34

22. बृ. यो. सो. 3/10

योगियाज्ञवल्क्यसंहिता और वशिष्ठ संहिता में पद्मासन का उल्लेख करते हुए कहा गया है कि –

**अगुष्ठौ च निबध्नीयाद्दस्ताभ्यां व्युत्क्रमेण तु ।  
उर्वोरुपरि विप्रेन्द्र कृत्वा पादतले उभे ।  
पद्मासनं भवेदेतत् सर्वेषामेव पूजितम् ॥<sup>23</sup>**

अर्थात् हे विप्रेन्द्र (योगाभ्यासी) अपने पादतलों को उरुओं पर स्थापित करते हुए दोनों हाथों को पीछे की ओर से ले जाकर पैरों के अंगुष्ठों को पकड़कर बैठे। यह पद्मासन की विधि है जो कि सभी योगाभ्यासियों द्वारा पूजित (अभ्यासित) है। यहाँ पर पद्मासन का स्वरूप उपर्युक्त वर्णित विधि के सदृश ही है किन्तु इन दोनों ही संहिताओं में दृष्टि को एकाग्र करने की विधि का उल्लेख नहीं किया गया है।

हठप्रदीपिकाकार ने योगीमत्स्येन्द्रनाथ जी द्वारा बतायी गयी पद्मासन की विधि का उल्लेख करते हुए कहा है कि –

“मन्तान्तरे तु” अर्थात् मतान्तर में –

**उत्तानौ चरणौ कृत्वा उरुसंस्थौ प्रयत्नतः ।  
उरुमध्ये तथोत्तानौ पाणीकृत्वा ततो दृशौ ॥  
नासाग्रे विन्यसेद्राजदन्तमूले तु जिह्वया ।  
उत्तंभ्य चिबुकं वक्षस्युत्थाप्य पवनं शनैः ॥  
इदं पद्मासनं प्रोक्तं सर्वव्याधिविनाशनम् ।  
दुर्लभं येन केनापि धीमता लभ्यते भुवि ॥<sup>24</sup>**

अर्थात् दोनों पादतलों को ऊपर की ओर करके प्रयत्न पूर्वक उरुओं पर स्थापित करते हुए हनु को हृदयक्षेत्रा पर स्थापित कर, एक हथेली पर दूसरी हथेली को विन्यासित करते हुए स्थापित जंघाओं के मध्य में रखकर, प्राण को शनैः शनैः ऊपर की ओर उठाकर

दृष्टि को नासाग्र पर रखते हुए, जिह्वा को राजदन्त (तालु के मध्य) भाग में स्थापित करें। यह विधि पद्मासन कहलाती है जो की शरीरस्थ समस्त प्रकार की व्याधियों का नाश करने वाला है। यह अभ्यास सामान्य जनों के लिए दुर्लभ तथा बुद्धिमान साधकों द्वारा ही प्राप्तव्य है। एक अन्य पद्मासन की विधि योगीमत्स्येन्द्र द्वारा ही उपदिष्ट है –

**कृत्वा सम्पुटितौ करौ दृढतरं वदध्वा तु पद्मासनम्,  
गाढं वक्षसि सन्निधाय चिबुकं ध्यायंश्च तच्चेतसि ।  
वारम्वारमपानमूर्ध्वमनिलं प्रोत्सारयन्पूरितम्,  
न्यञ्चन्प्राणमुपैति बोधमतुलं शक्तिप्रभावान्नरः ॥<sup>25</sup>**

अर्थात् – दृढतापूर्वक पद्मासन लगाकर, दोनों हाथों को सम्पुटित करते हुए, हनु को कण्ठकूप (वक्षस्थल के समीप) के समीप ठीक प्रकार से स्थापित करना चाहिए अर्थात् जालन्धर बन्ध लगाना चाहिए। बार-बार अपानवायु को ऊपर की ओर आकृष्ट कर तथा प्राण वायु को नीचे की ओर करते हुए दोनों वायुओं को परस्पर आपस में मिलाना चाहिए। ऐसा अभ्यास करने पर शरीर में स्थित कुण्डलिनी शक्ति जागृत होती है और उसके प्रभाव से अभ्यासी को अप्रतितम ज्ञान का बोध होता है। प्राण और अपान के योग के कारण स्वरूप ही कुण्डलिनी जागृत होती है। कुण्डलिनी बोध होने पर प्राण ब्रह्मरन्ध्र में गमन करता है, जिसके परिणामस्वरूप चित्त पूर्ण स्थिर हो जाता है।

अग्रिम श्लोक में पद्मासन के फल का वर्णन करते हुए कहा गया है कि –

**पद्मासने स्थिते योगी नाडीद्वारेण पूरितम्  
मारुतं धारयेद्यस्तु स मुक्तो नात्र संशयः ॥**

23. व. सं. 1/71 एवं यो. या. सं. 3/7, एवं पा. यो. सू. 2/46 पर यो. सि. च. 1, शा. उप. द्वि. ख 1/3

24. ह. प्र. 1/45-47, एवं पा. यो. सू. 2/46 पर यो. सि. च. 1

25. ह. प्र. 1/48

अर्थात् — पद्मासन में स्थित होकर जो अभ्यासी पूरक प्राणायाम के द्वारा शरीर में ग्रहण की गयी वायु को सुषुम्णा नाड़ी मार्ग से ब्रह्मरन्ध्र में ले जाकर धारण करता है वह निःसन्देह ही मुक्त है।<sup>26</sup>

उपर्युक्त मत्स्येन्द्रनाथ मत का पूर्ण उल्लेख "शिवसंहिता"<sup>27</sup> और "हठतत्त्वकौमुदी" में मिलता है किन्तु यहाँ पर श्वास-प्रश्वास की विधि में अन्तर दृष्टिगोचर होता है एकत्रा विधि का और अन्यत्रा फल का संकेत है। हठतत्त्वकौमुदी में इस आसनाभ्यास द्वारा प्राप्त होने वाले फलों की विस्तृत चर्चा करते हुए हठतत्त्वकौमुदीकार सुन्दरदेव जी ने कहा है कि —

**समस्तदोषज्वरदाहपित्तहरं गदध्नं सरलं सुखावहम् ।  
प्राणःसमोऽस्मिन् चलति क्षणेन मुनेरनुष्ठानविधौ सरोरुहे ।**<sup>28</sup>

अर्थात् — पद्मासन का अभ्यास समस्त प्रकार के शरीर दोष, ज्वरदाह, पित्तजन्य व्याधि और विष के प्रभाव को हरण करने वाला, सुखप्रदान करने वाला, तथा श्वास-प्रश्वास की गति को समान रूप में प्रचलित करने वाला यह मुनियों के द्वारा अभ्यसित सरोरुह अर्थात् पद्मासन है।

इन उपर्युक्त विधियों के अतिरिक्त कूर्मपुराण, योगकुण्डल्युपनिषद्, त्रिशिखब्रह्मणोपनिषद् में

पद्मासन के स्वरूप का उल्लेख करते हुए कहा गया है कि —

**उर्वोरुपरि विप्रेन्द्रः कृत्वा पादतले उभे ।  
समासीतात्मनः पद्ममेतदासनमुत्तमम् ॥<sup>29</sup>  
उर्वोरुपरि चेद्धत्ते उभे पादतले यथा ।  
पद्मासनं भवेदेतत् सर्वपापप्रणाशनम् ॥<sup>30</sup>  
उर्वोरुपरि वै धत्ते यदा पादतले उभे ।  
पद्मासनं भवेदेतत् सर्वव्याधिविषापहम् ॥<sup>31</sup>**

यहाँ पर पद्मासन का वर्णन करते हुए केवल पादतलों का एक दूसरे ऊरुओं के ऊपर स्थापित करने की विधि का उल्लेख है तथा कूर्मपुराण में इसे आसनों में उत्तम, योगकुण्डल्युपनिषद् में सभी प्रकार के पापों (तापत्रायों के प्रभाव) को शमन करने वाला, त्रिशिखब्रह्मणोपनिषद् में सभी प्रकार के व्याधियों और विष का नाश करने वाला कहा गया है। किन्तु त्रिशिखब्रह्मणोपनिषद् में पद्मासन में स्थित होकर पृष्ठ भाग की ओर से दोनों हाथों के द्वारा व्युत्क्रम विधि से पादांगुष्ठों को पकड़ने की विधि को बद्धपद्मासन की संज्ञा से अभिहित किया गया है। यथा —

**पद्मासनं सुसंस्थाप्य तदंगुष्ठद्वयं पुनः ।  
व्युत्क्रमेणैव हस्ताभ्यां बद्धपद्मासनं भवेत् ॥<sup>32</sup>**

उपर्युक्त ग्रन्थों के अतिरिक्त कुछ अन्य ग्रन्थों में केवल पद्मासन के महत्त्वादि की व्याख्या तथा नामोल्लेख मात्र दर्शित किया गया है जिनमें कुछ हठयोगिक

26. ह. प्र. 1/49

27. यथाशक्त्या समाकृष्य पूरयेदुदरं शनैः । यथाशक्त्यैव पश्चात्तु रेचयेदविरोधतः ॥  
इदं पद्मासनं प्रोक्तं सर्वव्याधिविनाशनम् । शि. सं. 3/88

28. हठ-तत्त्व. कौ. 7/25

29. कूर्म. पु. 11/44

30. यो. कु. उप. 1/5

31. त्रिा. ब्र. उप. 39

32. त्रिा. ब्र. उप. मन्त्रभाग 40

ग्रन्थ, कुछ उपनिषद् तथा कुछ पुराण सम्मिलित हैं। जिनमें सिद्धसिद्धान्तपद्धति<sup>34</sup>, योगचूडामण्युपनिषद्<sup>35</sup>, योगतत्त्वोपनिषद्<sup>36</sup>, नारदपुराण<sup>37</sup>, वायुपुराण<sup>38</sup>, अग्निपुराण<sup>39</sup>, मार्कण्डेयपुराण<sup>40</sup>, ब्रह्मपुराण<sup>41</sup>, अमृतनादोपनिषद्<sup>42</sup>, आदि विशेष रूप से सम्मिलित हैं।

निष्कर्षतः यह कहा जा सकता है कि "पद्मासन" को योग परम्परा में एक महत्त्वपूर्ण आसन माना गया

है जिसको आसनों में प्रमुख स्थान प्राप्त है। ध्यानादि के अभ्यास में भी इस आसन का ही सर्वाधिक प्रयोग होता है जिसके कारण इसे ध्यानात्मक आसन भी कहते हैं।

पद्मासन से सम्बन्धित यह लेख लगभग तीस मूल यौगिक ग्रन्थों पर आधारित सन्दर्भों के अध्ययन के उपरान्त प्रस्तुत किया गया है।

33. आसनमिति स्वस्वरूपे समासन्नता।  
स्वस्तिकासनं पद्मासनं सिद्धासनमेतेषां,  
मध्ये यथेष्टमेकं विधाय सावधानेन स्थातव्यम्।। सि.सि.प. 2/34
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35. सिद्धं पद्मं तथा सिंहं भद्रं चेति चतुष्टयम्। यो. त. उप. 29
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37. आसनं स्वस्तिकं कृत्वा पद्ममर्द्धासनस्तथा। वा. पु. 11/13
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यो. चू. उप. 1/3

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## BOOK REVIEW

## CHARIOT OF SADHANA

by

Dr. Martin, Dr. Marian Jerry  
and

Mahamandaleshwar Swami Veda Bharati

Pages: 308

Price: \$ 27.99

The role of the sage in the Himalayan Tradition of Yoga is to awaken within the student the divine name, that spark of divinity all human beings carry within them, and which the late Sri Swami Rama called the Teacher within, the Inner Guru, or Centre of Consciousness. Once that divine name is lit, one truly becomes a disciple on the Spiritual Path. The authors first review the Yoga of the Centre of Consciousness and then describe in depth the nature of the spiritual practice (*sadhana*) for the new discipline as a metaphor of a chariot with two wheels: dispassion (*vairagya*) and practice (*abhyasa*) as described in the first chapter of Patanjali's *Yoga-Sutra*, the core text of Raja Yoga. Both wheels must turn together for the chariot to advance. The book presents a unified system based in Raja Yoga that integrates the Yogas of life and discipline on a foundation of meditation suitable for this stage of the Spiritual Path. The book concludes with an exploration of the role of grace in the guru-disciple spiritual relationship.

David Frawley (Pandit Vamadeva Shastri), Director, American Institute of Vedic Studies expressed that *The Chariot of Sadhana* is a refreshing and insightful alternative to the common mass approaches to Yoga. It is one of the most in depth and sophisticated explanations of *Yoga Dharma* today. It provides a clear and authentic presentation of traditional Yoga, including key teachings of the *Yoga-Sutra*, examined with logic, clarity and insight, faithful to the tradition, the meaning of the text and to an experiential application in *sadhana* today. The book is one of the best in depth studies of Yoga as a spiritual practice, an exploration of consciousness and a means of taking us to the highest Self-realization.

This remarkable book holds both inspiration and impact. Both devoted practitioner and neophyte will be captivated by the yoga teachings brought alive in this guide book for the ultimate experience of Presence.

Dr. Martin and Dr. Marian Jerry, physician-scientist and clinical psychologist respectively, have studied and practiced Yoga since 1968 and were initiated into the Tradition of the Himalayan Masters first by Swami Veda Bharati and then by the late H. H. Sri Swami Rama, with whom they studied directly for ten years in both North America and India. In 2000 they authored the first book in this series: *Sutras of the Inner Teacher: The Yoga of the Centre of Consciousness*. They are founding teachers of the Foothills Yoga Society in Calgary, Canada.

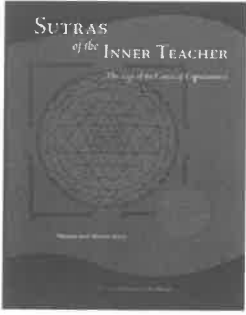
Mahamandaleshvara Swami Veda Bharti, current Spiritual Director and Preceptor of Sadhana Mandir, Swami Rama's Ashram, and of Swami Rama Sadhaka Grama in Rishikesh, India, has spent the past 60 years teaching and providing spiritual guidance around the world. Raised in the-thousand-year-old tradition of Sanskrit-speaking scholar-philosophers of India, Swami Veda is a poet, scholar, research guide and international speaker par excellence. He is author of the most comprehensive commentary on Patanjali's Yoga-Sutras and many other books including *Superconscious*

*Meditation, Mantra and Meditation, Meditation and the art of dying, Philosophy of Hatha Yoga, God, Sayings.* His influence is reflected in the precision, comprehensiveness and thoughtfulness present in every page of the book.

*The Chariot of Sadhana* makes an excellent textbook for deeper Yoga studies, for those who want to go beyond the physical aspects of Yoga to the Yoga of the Infinite and Eternal. This book marks a new era in books on Yoga, in which practically useful studies of the deeper Yoga become available to the Yoga lovers in East as well as West. May the world of Yoga students embrace this wonderful book and learn to imbibe its wisdom.

**Dr Ritu Chaku,**  
SRF (under WHO project),  
MDNIY.





## SUTRAS OF THE INNER TEACHER

by

Dr. Martin and Dr. Marian Jerry

Pages: 245      Price: \$ 19.99

In the Himalayan tradition of Yoga, the role of a sage is to awaken within the student the divine flame, that of divinity that all human beings carry within. The late H. H. Sri Swami Rama called this the “Teacher within” or the “Centre of Consciousness.” In this book, the authors describe as awakening of the “Inner Teacher”, providing personal experiences that shed light on the mysteries of the guru-disciple relationship.

Written as 108 sutras or brief aphorisms with extensive discussion and Sanskrit glossary, the text has a comprehensive western scientific commentary and bibliography. A consideration of the deep mystical experience of the Centre leads into a comprehensive first curriculum that provides practical guidance for the new discipline about how to work with the Inner teacher. The book presents a unified system for this stage of the Spiritual Path.

Mahamandaleshwar Swami Veda Bharati, in the preface of this book, expresses that the last meaning of these sutras is simply the Nature of Divinity within us. It is no more speculation presented as a hypothesis. Sri Swami Rama always spoke of seeking personal experience. What is stated here is experiential. Even a distant glimpse of this light fills the soul and then spills over, as it has done herein.

Dr. Martin and Dr. Marian Jerry, physician-scientist and clinical psychologist respectively, have studied and practiced Yoga since 1968 and were initiated into the Tradition of the Himalayan Masters first by Swami Veda Bharati and then by the late H. H. Sri Swami Rama, with whom they studied directly for ten years in both North America and India. They have conducted clinical and laboratory research on the effects of meditation and maintain an active interest in the medical and psychological applications of Yoga philosophy, psychology and practice.

May the gravity pull of the teaching spirit draw you and guide you to the same first hand experience.

Dr Ritu Chaku,  
SRF (under WHO project),  
MDNIY.

## ACTIVITIES OF MDNIY

### YOGA EDUCATIONAL & TRAINING PROGRAMS

#### 1. Diploma in Yoga Therapy (DYT) (Two-years duration) (Batch 2006-2008)

Fifteen DYT students completed the course successfully. All the students started their internship in different Yoga Therapy and Research Centers like Advanced Centre of Yoga at NIMHANS, Bangalore, Swami Vivekananda Yoga Research Foundation, Bangalore and also at MDNIY. They started on 17<sup>th</sup> May, 2009 and will complete by 20<sup>th</sup> November, 2009.

#### 2. Diploma in Yoga Therapy (DYT) (Two years duration) (Batch 2007-2009)

Seventeen students completed their course in May 2009. Dr. B.N. Gangadhar, Professor and Head, Department of Psychiatry, NIMHANS, Bangalore, J.P. Sharma, Reader, Indira Gandhi Institute of Physical Education & Sports Sciences, New Delhi, Dr. Shivarama Varambally, Associate Professor, Deptt of Psychiatry, NIMHANS, Bangalore, Dr. Chandra Shekhar, Director of Yoga Chikitsa, Krishnamacharya Yoga Mandiram, Chennai, Dr. R. Nagarathna, Dean, Faculty of Science, SVYASA, Bangalore, Dr. Ravindra, Research Scholar, NIMHANS Bangalore and Dr. A.K. Ghosh, Retd. Professor, Deptt. of Bio-Sciences, RD & DJ College, Munger, Bihar also delivered lectures to DYT students in their course period.

#### 3. Diploma in Yoga Science (DYSc) (One Year Duration) (Batch 2008-2009)

Students of Diploma in Yoga Science (DYSc 2008-09) resumed classes on 5<sup>th</sup> January, 2009 after 16 days of winter vacation. Dr. Vishnu Panigrahi, Yoga Expert, HIHT University, Rishikesh delivered 9 Guest Lectures on 'Elementary Practices leading to Yoga Meditation' to the DYSc 2008-09 (1<sup>st</sup> Semester) from 27<sup>th</sup> to 30<sup>th</sup> January, 2009. The students of DYSc conducted Yoga Camps in more than 100 schools in and around Delhi during National Yoga Week – 2009.

#### 4. Foundation Course in Yoga for Promotion of Health

Foundation Course in Yoga for Promotion of Health is the basic course of 1 month duration. During the course, the participants were given special lecture on various aspects of Yoga, Diet, etc. The Certificates to the participants were awarded by the Assistant Director (Yoga), MDNIY. In April – June 2009, 76 participants completed the course successfully. From this quarter, the Institute has started distributing course material to the participants which includes 'Yoga for all' CD, Yogasana chart, Yoga Vijnana (current issue), Jalneti pot, Sutraneti and writing pad.

#### 5. Certificate Course in Yoga Science (CYSc) for BSF Personnel

A valedictory function was organized after completion of 1<sup>st</sup> CYSc. Course for BSF Personnel on 2<sup>nd</sup> January, 2009 at Chhawla Camp, 25 Battalion, New Delhi. DIG, BSF was the chief guest of the function. Director MDNIY along with other staff members had participated in the function as Guests.

### 6. Summer Yoga Camps by the Students of DYSc Course

The students of the DYSc Course (2008-09) conducted the Summer Yoga camp in 75 different places of Delhi and NCR. The camps were of one month duration from June 01-30, 2009.

### 7. Summer Yoga Workshop for Children

The Institute organized the Summer Yoga Workshop for Children from May 18-June 17, 2009. The workshop was formally inaugurated by Dr. G. Ravindra, Joint Director, NCERT by lighting the lamp, Dr. B.P. Bharadwaj, Reader, NCERT was the Guest of Honour. 162 children from different schools of Delhi participated in the one month workshop. 129 children completed the program, successfully. The Valedictory Function was organized on June 17, 2009. Dr. S.K. Panda, Joint Secretary (AYUSH), Ministry of Health & Family Welfare, Govt. of India was the Chief Guest of this function. Dr. Ishwar V. Basavaraddi, Director, MDNIY and other Senior Officers of the Institute were present during the occasion.

### 8. Certificate Course in Yoga Science for BSF Personnel

In combating the modern time challenges, Yoga has played a great healing role. Keeping this in view, a three and half months Certificate Course in Yoga Science for the BSF Personnel was organized by the Institute. The course started on February 02, 2009 and ended on May 29, 2009. Sixty BSF Personnel completed the course successfully. Along with the appointed teaching faculties, four Yoga Experts from the Institute were deputed to take the classes. The field work during the course was organized at Chhawla and Bhaundsi Training Centre of BSF. All the 60 candidates completed the field work successfully. During the course, physiological as well as psychological assessment tests were also carried out, which are under statistical analysis. The Valedictory Function was organized in the Institute on May 29, 2009. Sh. S.N. Pandey, Deputy Commandant (Trg.) was the Chief Guest. Dr. Ishwar V. Basavaraddi, Director MDNIY, Sh. H.N. Chaudhary, AD (Yoga), K.K. Mishra, ARO (Yoga), Sh. K. Doren Singh, Course Coordinator and Sh. Vijay Kumar Singh (Programme Coordinator) were present during the occasion. Participation certificates were distributed to the candidates. 27% candidates passed the examination with distinction, 70% in First Division and 3% in Second Division.

## YOGA RESEARCH PROGRAMMES

Following four ADVANCED CENTRES have been set up and research activities were initiated:

1. **Advanced Centre for Yoga Therapy and Research (ACYTR) in Mental Health & Neurosciences at NIMHANS, Bangalore:** The Centre was inaugurated by Smt. S. Jalaja, Secretary (AYUSH), Govt. of India, on May 14, 2009. Other dignitaries present on the occasion were Sh. B. Anand, Joint Secretary, Deptt. of AYUSH, Dr. H.R. Nagendra, Director/ Vice Chancellor, SVYASA, Dr. D. Nagaraja, Director, NIMHANS, Mrs. Savitri, Registrar, NIMHANS and Dr. B.N. Gangadhar, Medical Superintendent & Program Director, ACYTR, NIMHANS. A total of 160 patients suffering from different psychiatric and neurological disorders were referred from inpatient and outpatient services of NIMHANS and were treated during the quarter.
2. **Advanced Centre for Yoga Therapy, Education and Research (ACYTER) in Cardio-vascular disorder and Diabetes Mellitus at JIPMER, Puducherry:** Dr. Madan Mohan, Professor, Deptt.

of Physiology, JIPMER is the Program Director and Dr. Ananda Balayogi Bhavanani is the Programme Co-ordinator. An Orientation Programme was conducted from 1<sup>st</sup> June, 2009 to 15<sup>th</sup> June, 2009 for the staff of ACYTER on Research methods and teaching methods in Yoga. A workshop was conducted by Dr. E.S. Prakash from Asian Institute of Medical Studies Institute, Malaysia. ACYTER OPD facility for Yoga Therapy was started on 15<sup>th</sup> June, 2009 in Super Specialty Block of JIPMER. About 154 patients with various ailments attended consultation by Dr. Ananda Balayogi Bhavanani and Dr. Zeena Sanjay.

3. **Centre for Advanced Research and Training in Yoga (CARTY) in Operational Stress and Performance Improvement for Defence Personnel at DIPAS, Delhi:** In line of its objective to train the scientists along with Defence personnel in Yoga, CARTY has started Yoga training programme for the Scientists of DIPAS. The duration of the Yoga practice session was 50 minutes daily. A batch (8-9 am) has been trained for 4 weeks from May 11 – June 05, 2009. Relevant physiological parameters have also been monitored for assessment of the progress in training before and after Yogic practices. The second batch started from June 08–July 03, 2009.
4. **Advanced Centre for Yoga Education and Research (ACYER) in Respiratory Diseases and Geriatric Care at GAU, Jamnagar, Gujarat:** The centre is functioning since the first quarter of 2009. The Centre is headed by Dr. Arpan A. Bhatt, HOD, Deptt. of Swasthavritta. The Centre is running successfully and patients suffering from Respiratory disorders were benefited by the consultancy of the centre.

## YOGA THERAPY AND RESEARCH CENTRES IN TERTIARY HOSPITALS OF MODERN MEDICINE

### Patients treated at Yoga Therapy and Research Centres in Tertiary Hospitals

Name of the Hospital	Total Number of Patients treated		
	April 2009	May 2009	June 2009
LRS Institute of Tuberculosis & Allied Sciences, Delhi	107	124	143
Vallabhbhai Patel Chest Institute, Delhi.	57	58	70
Rajan Babu Institute of Pulmonary Medicine and Tuberculosis, Delhi	60	63	87
Institute of Human Behavior & Allied Sciences, Delhi.	66	84	68
<b>Total</b>	<b>290</b>	<b>329</b>	<b>368</b>

## PREVENTIVE HEALTH CARE UNITS OF YOGA IN CGHS DISPENSARIES

The Institute has started Preventive Health care units of Yoga in 10 CGHS Dispensaries in Delhi and National Capital Region (NCR) from January, 2009. In two of these Centers, Summer Yoga Camp for Children was organized by the Yoga Instructors.

## YOGA THERAPY PROGRAMMES

1. **AROGYA – 2009 (Mumbai)** was organized at MHRD ground, Bandra Kurla Complex, Mumbai from 30<sup>th</sup> January to 2<sup>nd</sup> February, 2009. On this occasion, MDNIY presented and

demonstrated various events under the banner of Deptt of AYUSH, Ministry of Health and Family Welfare, Govt. of India, New Delhi.

2. **Free OPD Consultation & Yoga Therapy Classes** from 08.30 a.m. to 01.30 p.m. and 2.00 p.m. to 05.00 p.m. (on five working days): Six Yoga Therapy classes starting from 6:00 am to 5:00 pm including one class exclusively for ladies between 11.30 am to 12.30 pm are being conducted regularly from Monday to Friday.
3. **Classes outside the Institute:**
  - i. The Yoga classes in **Nirman Bhavan**, Ministry of Health & Family Welfare, New Delhi, were conducted for the officers. The class for males (23) and females (45) were conducted separately. Shri M.S. Bhadoria, Y.I. and Mrs. Meera Chauhan, Y.I. were deputed to conduct separate Yoga classes for males and females.
  - ii. The Yoga classes in **Defense Research and Development Organization (DRDO)** were conducted by Sh Amaresh Jha, YI and Ms. Satvinder Kaur, YI. The Male and Female classes were conducted separately.
  - iii. Yoga Classes for Lok Sabha Secretariat in **Parliament House Complex** were conducted by Sh. Amresh Kumar, YI and Ms. Manju Bharti, YI.

### National Yoga Week - 2009

Morarji Desai National Institute of Yoga (MDNIY) organized National Yoga Week (a mass awareness programme for Health, Happiness and Harmony through Yoga) 16-22 March, 2009 on the theme **The Role of Yoga in School Health** with the following main events:

Event	Theme	Dates
Conference	Role of Yoga in School Health	16-17 February, 2009
Seminar	Health Education in Schools through Yoga	18 February, 2009
Workshops	Teaching Methodology in Yoga for School Children	9-20 February, 2009
Yoga Camps	Yoga Awareness Program / Yoga Camps in Schools by more than 20 leading Yoga Institutes/ Colleges across the Country	16-22 February, 2009

The National Yoga Week-2009 was inaugurated by Smt. Panabaaka Lakshmi, Hon'ble Minister of State for Health & Family Welfare and presided over by Smt. S. Jalaja, Secretary, Deptt. of AYUSH, Govt. of India on 16<sup>th</sup> February, 2009 at 4.30 pm. Dr. B.K.S. Iyengar, President, Ramamani Iyengar Memorial Yoga Institute, Pune was the Guest of Honour. The Valedictory Function of the National Yoga Week-2009 was held on 20<sup>th</sup> February, 2009. Dr. H.R. Nagendra, Vice-Chancellor, Swami Vivekananda Yoga Anusandhana Samsthana, Bangalore was the Chief Guest. More than 380 delegates and 60 eminent Yoga Experts and Medical professionals participated in National Yoga Week-2009. MDNIY also conducted Yoga Camps in more than 100 schools in and around Delhi.

### 2. 23<sup>rd</sup> Surajkund Craft Mela-2009

23<sup>rd</sup> Surajkund Craft Mela-2009 was organized by *Surajkund Craft Mela Authority* in collaboration with Ministry of Tourism, Haryana from 1-15 February, 2009. Morarji Desai National Institute

of Yoga, New Delhi was invited to conduct Free Yoga Therapy Consultation, distribution of publication of MDNIY and free distribution of IEC material. The Mela was inaugurated by Smt. Pratibha Patil, Hon'ble President of India. The other dignitaries who attended were Sh. Bhupinder Singh Hooda, Chief Minister of Haryana, Hon'ble Minister of Tourism, Haryana and other officers from Govt. of Haryana. Around 1400 Sadhakas were given Yoga counseling as well as Therapy from the Yoga expert of MDNIY. The response was overwhelming.

### 3. Release of 3 Publications

Communication and Documentation section has released the three publications during National Yoga Week – 2009:

- Book – Yoga Darshan
- Book – Pratah Smaran
- Book – Yoga in School health
- Book – Shatkarma

### 4. Study Tour of Diploma in Yoga Science (2008-09)

The Diploma in Yoga Science students conducted a study tour as part of their curriculum under four officials of MDNIY Sh. H.N. Chaudhary, Asstt. Director (Yoga). Sh. B.M. Singh, ARO (Yoga) & Coordinator, D.Y.Sc Mrs. Seema Sagar, Co-coordinator, D.Y.Sc. & Mrs. Lalita Mathur, ARO (Yoga) along with total 74 students (40 girls & 34 boys) of D.Y.Sc. (2008-09) in April, 2009. They visited following places:

1. Paramarth Niketan, Swargashram, Rishikesh, Uttarakhand.
2. 'Swami Rama Sadhaka Grama', Rishikesh, Uttarakhand.
3. Dev Sanskriti Vishwavidyalaya, Shanti Kunj, Hardwar.
4. Gurukul Kangri Vishwavidyalaya, Hardwar, Uttarakhand.
5. Patanjali Yogapeeth Hardwar, Uttarakhand.

### 5. Philosophico - Literary Research Project

The Institute has undertaken a Philosophico-Literary Research Project entitled “**Philosophy and Practices of Hatha Yoga Traditions**” (An anthological Presentation of Basic Hatha Yoga Treatises), as a pilot project in the field of Hatha Yoga. The research is focused on five major areas of the Hatha Yoga Tradition:

1. Philosophy
2. Shodhana Kriyas
3. Asana
4. Pranayama
5. Bandha-Mudra

### 6. Learning Resource Centre (LRC) partially funded by WHO

MDNIY has taken up a project to set up a “**Learning Resource Centre (LRC)**” facilitated with teaching and learning resources – print, non-print and electronic media, and providing information for easy access and use by all. When hosted on internet, people from across the globe can access and use the information/ services. It is considered as the heart of an education, training and

learning centre for Yoga. The redesigning and development of MDNIY Website has been carried out. The newly designed website will be shortly hosted on the internet.

MDNIY has brought up the following disease wise booklets:

- Yogic Management of Diabetes Mellitus
- Yogic Management of Back pain and Neck pain
- Yogic Management of Arthritis
- Yogic Management of Obesity
- Yogic Management of Cardio-vascular diseases
- Yogic Management of Respiratory disorders
- Yogic Management of Gynecological disorders
- Yogic Management of Geriatric disorders
- Yogic Management of Psychiatric disorders
- Yogic Management of Neurological disorders

Each booklet is being peer reviewed by the experts in Yoga and Modern Medicine been already completed. After completion these booklets will be published by WHO in various foreign and Indian languages.

#### Other activities under WHO project

- Preparation of Study Material for Foundation Course in Yoga Science for Medical graduates/professionals
- Preparation of Atlas of Yoga Practices

#### 7. Task Force on Promotion of Yoga

The Department of AYUSH has constituted a Task Force on Promotion of Yoga. The first meeting of the Task Force on promotion of Yoga was held on April 22, 2009 at 3.00 p.m. in Committee Room, Department of AYUSH Red Cross Building, New Delhi under the Chairpersonship of the Shri S.K. Panda, Joint Secretary, Department of AYUSH, Ministry of Health & Family Welfare, Govt. of India. The action taken on the minutes of the Brainstorming Session were discussed at length and decisions were taken for:

- National Campaign on Yoga for Mental Health
- Training of Medical Professionals
- Yoga Training for Allopathic Doctors
- Teacher Training Programme in Yoga
- Public-Private Partnership
- I.E.C.
- Income-Tax exemption
- Space in Hospitals, Schools & Public places
- Dialogue with Min. of HRD
- Yoga facilities for foreigners

#### 8. Dignitaries Visited MDNIY

1. Dr. Dilip K. Sardar, MD, FACS, Associate professor of Clinical Surgery, Eastern Virginia Medical School. U.S.A. visited the Institute on April 15, 2009.

2. Shri A.R. Talwar. IAS, Principal Secretary, Health and Family Welfare, Govt. of Punjab, Chandigarh visited the Institute on April 24, 2009.
3. A team of 12 delegates from Ayurveda Korea of South Korea visited the Institute on June 13, 2009 to gather information on the activities of the Institute.
9. **Re-Orientation Training Program (Rotp) on Yoga for Ayush/Allopathy Doctors**

The Re-Orientation Training Program on Yoga for AYUSH/Allopathy doctors, sponsored by Deptt of AYUSH, Ministry of Health and Family Welfare, Govt. of India, was organized in the Institute from May 25-30, 2009 in which 23 participants attended the program. The program was formally inaugurated by Director MDNIY by lighting the lamp. Six external experts and five internal experts of national and international repute were invited to deliver lectures and conduct practical sessions for the participants. The Valedictory function was organized on May 30, 2009. Dr. V. V. Prasad, Director, RAV & Nodal Officer (RoTP/CME) was the Chief Guest. Dr. I.V. Basavaraddi, Director MDNIY, Dr. I. N. Acharya, PO (YT), Sh. H.N. Chaudhary, AD (Yoga) and Shri J. Majumder, Asstt. Research Officer (Scientific) and Coordinator (RoTP) were present on the occasion. Participation certificates were distributed to the participants.

#### 10. Bi-Monthly Expert Lecture

The Bi-monthly Expert Lecture Series have been started from the month of January, 2009. The first lecture under this series was delivered by Dr. Swami Veda Bharti, Chancellor, HIHT University, Dehradun on the topic "Practices of Breath Awareness Meditation in Different Traditions" on 29<sup>th</sup> January, 2009. The lecture was attended by students and staff of the Institute, the senior officers of Ministry and some interested public.

The second lecture under this series was organized in the Institute on May 28, 2009. Dr. Manoj Anand Naik, Leading Physician & Yoga Consultant Ramamani Iyengar Yoga Institute, Pune, delivered the lecture on the topic "Yogasanas: Modern Medical Perspective" shedding the light on the complementary nature of modern medicine with Yoga. He also demonstrated around 100 Yoga Postures which was extremely applauded by the audience.

#### 11. Shankhprakashalana Yogic Kriya (SYK)

A new program of Shankhprakashalana Yogic Kriya (SYK) was successfully started by the Institute from the month of May, 2009. This program is conducted on every last Saturday of the month. From April to June 2009, 12 participants successfully completed the Shankhprakashalana Yogic Kriya

#### 12. Pancham Swar

The Socio-Cultural Programme "Pancham Swar - Phulwari" was organized in the Institute on May 29, 2009. Children of Summer Yoga Workshop participated in the Programme. It was an effort to bring smiles on the face of the children. 'Phulwari' was colourful cultural programme, consisted of songs, dances, play and instrumental music. The main point to organize this programme was to bring out the potential of the children. The programme ended with presidential remarks by Dr. Ishwar V. Basavaraddi, Director, MDNIY. Shri H.N. Chaudhary, Assistant Director (Yoga) proposed the Vote of Thanks. The Programme was highly appreciated by the audience.



## INSTRUCTIONS TO AUTHORS

### THE MATTER FOR PUBLICATION

- Original research papers
- Articles by eminent Yoga professionals
- Concise and mini reviews on topics of current interests
- Brief communications on all aspects of fundamental and clinical research on theory and philosophy of Yoga
- Case reports of special therapeutic interest
- Papers on normal metabolic process relevant to human diseases
- Book reviews

**MANUSCRIPTS** (English and Hindi) shall be complete with figures, tables and references and be submitted in triplicate along with a soft copy of the article. Papers will be subjected to peer reviewing. Any comments of experts will be communicated to the authors. The Editor reserves the right to correct the grammar mistakes and necessary corrections even of accepted papers.

### UNDERTAKING BY THE AUTHORS

An undertaking has to be signed by all the authors that:

- The contents in the whole or in part, for the paper entitled “\_\_\_\_\_” submitted to “Yoga Vijnana” have not already been published elsewhere in whole or in part.
- The contents in whole or in part, for the paper entitled “\_\_\_\_\_” submitted to “Yoga Vijnana” will not be published in any other journal unless the authors receive a rejection letter from the Editorial committee of “Yoga Vijnana”.
- The authorship of the paper will not be questioned by any one of us or by any other person whose name is not given and
- The Editor, the members of the Editorial Board, Associate Editors and Scientific Advisor Committee will not be responsible for either the views expressed by the author or any possible controversy regarding the authorship of the paper.

Typed manuscripts should be double spaced on one side of the paper only, leaving 4 cm margin. Front page should have brief and precise title (all capitals); the names and addresses of authors and institutions at which the work was carried out; present address of the author(s) if different as a footnote; abstract key words (not more than 5) below the abstract for indexing and author for correspondence for papers with multiple authorship as footnote.

The paper should be divided into Abstract, Introduction, Materials and Methods, Results and Discussion, etc.

**ABSTRACT** should be restricted to summary of the important results and conclusions only without general statements. It should not exceed 150 words and be on first page without abbreviations.

**INTRODUCTION** mention must be made to the previous work on the subject if the paper briefly, quoting the references by numbers within brackets in the order in which they are cited. Too many unnecessary details and very old references should be avoided. The reasons for carrying out the present investigations and the lacunae in our present knowledge have to be clearly pointed out.

**MATERIALS AND METHODS** should contain sources of material and all the actual methods employed in brief.

**RESULTS AND DISCUSSION** may be given separately or combined according to the discretion of the authors. Lengthy discussions and postulations not based on the actual findings of the study should be avoided. Authors are advised to avoid too many paragraphs.

**ABBREVIATIONS:** Standard abbreviation should be used after giving the full names first time introducing the terms along with the abbreviations in parenthesis.

**FIGURES (LEGEND ALSO) AND TABLES** should be on separate pages and numbered consecutively (1, 2, etc). the figures should be drawn clearly in Indian ink on good paper. One original drawing and the other two sets of photographs should be send. Computer generated graphics in black in good quality laser printer are also acceptable. Only standard symbols should be used for figures. Tables should have brief titles and without vertical lines. Statistical significance etc have to be as foot note to the corresponding tables.

**REFERENCES** should be numbered in order of citation in the text appropriate place in brackets in line with the text. References in the end must be on separate sheets in serial order. They must be complete with names and initials of the authors, year, title of the paper, name of the journal, volume and first and last page numbers and place of publication have to be given. Titles of journals have to be abbreviated in conformity with the list of periodicals.

#### **HONORARIUM TO AUTHORS**

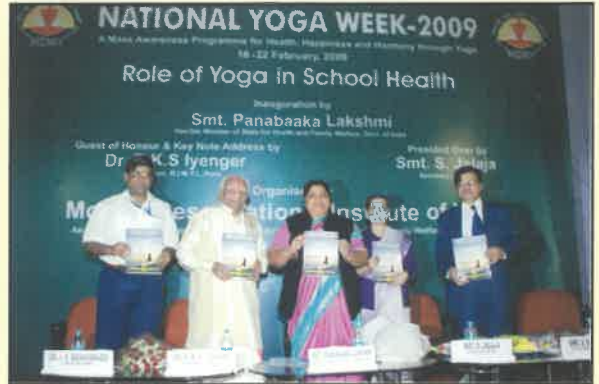
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- Total number of 25 free copies of the published article shall be provided to authors.

Manuscripts (both hard and soft copy) should be sent to Editor, Yoga Vijnana, Quarterly Journal, Morarji Desai National Institute of Yoga, 68, Ashoka Road, New Delhi-110001.

**NATIONAL YOGA WEEK – 2009**



Hon'ble Minister for Health and Family Welfare, Govt. of India, Smt Panabaka Lakshmi, Yogaguru B.K.S. Iyengar, Secretary (AYUSH) S. Jalaja, Joint Secretary Dr. S.K. Panda along with director MDNIY inaugurating the National Yoga Week – 2009 by lighting the lamp.



Hon'ble Minister for Health and Family Welfare, Govt of India, and other dignitaries releasing Souvenir of National Yoga Week – 2009 in inauguration ceremony.



Yogacharya Dr. B.K.S. Iyengar felicitated by Secretary AYUSH



Yoga Experts from all over the country in National Yoga Week – 2009 after a brain storming session.



School children performing Yoga practice during National Yoga Week – 2009



School children performing Yoga practice during National Yoga Week - 2009



Inauguration of the Advanced Centre for Yoga Therapy and Research (ACYTR) at NIMHANS, Bangalore by Secretary (AYUSH) on May 14<sup>th</sup> 2009



Joint Secretary AYUSH Dr. S.K. Panda as chief guest during the valedictory function of Summer Yoga Workshop for children

### SPORTS DAY CELEBRATION OF DYSc STUDENTS (2008-09)



DYSc Students participating in lemon race in Sports day of MDNIY at Talkatora Stadium, New Delhi



DYSc Students participating in Sports day of MDNIY at Talkatora Stadium, New Delhi



Pancham svar – a socio-cultural program by participants of Summer Yoga Workshop for children in MDNIY auditorium



Diploma in Yoga Science (DYSc.-2008-09) visiting Parmarth Nature Cure & Yoga Centre, Haridwar during their study tour.

## FORM - B

I, Dr. Ishwar V. Basavaraddi, declare that I am the publisher of the journal entitled "Yoga Vijnana" to be printed at New Delhi and published at New Delhi and the particulars in respect of the said journal given hereunder are true to the best of my knowledge and belief:-

- |   |   |
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**DR. ISHWAR V. BASAVARADDI**  
Editor

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