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आज़ादी का  
अमृत महोत्सव



सत्यमेव जयते  
Ministry of Ayush  
Government of India



WEBINAR



Series



मोरारजी देसाई राष्ट्रीय योग संस्थान  
आयुष मंत्रालय, भारत सरकार  
**MORARJI DESAI NATIONAL INSTITUTE OF YOGA**  
Ministry of Ayush, Govt. of India

# *Friday Webinar*

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## *From the Director's Desk*



COVID-19 has impacted our lives in a colossal manner and wreaked havoc across the globe, snuffing out many lives, and burdening hospitals and doctors beyond their capacities. It has affected multiple aspects pertaining to the social, cultural, and economic milieu.

Morarji Desai National Institute of Yoga (MDNIY), Ministry of Ayush started webinars every Friday from 2nd October 2020 as part of the 'Ayush for Immunity Campaign' by inviting eminent professionals/individuals who have achieved milestones in their field to promote general wellness. Several questions, misinformation, and myths regarding the virus have also gripped the cognizance all around. The Institute has ensured a responsible approach in order to alleviate the panic and reach out to the public in times of such a grim situation as fear and anxiety proliferate during the pandemic.



Dr. Ishwar V. Basavaraddi  
Director, MDNIY

Webinars held on every Friday provided a platform for a scientific basis to prevent exposure to infectious agents based on real-time experiences. Speakers addressed numerous ongoing challenges with the health infrastructure, proper ventilation, airflow, space for distancing, and compliance with masking and presented the data on the effectiveness of physical distancing, and vaccination. They also emphasized on the need to remain diligent about keeping citizens safe from further COVID variants expansion.

All these webinars shed light on experiences and solutions to better protect workers and citizens in clinics, nursing homes, emergency response, and home health. It included lessons learnt from other public health crises and how to build better, forward-thinking occupational health and safety and infection prevention plans that prepare for whatever crisis is ahead.

I express my deep gratitude to all the esteemed speakers who generously shared their valuable knowledge for the betterment of the society.

MDNIY continues to work in every aspect to help in combating COVID-19 pandemic. We have been striving to reach out with the most credible and right set of information to pave a way for a healthy society.

It is my pleasure that MDNIY is bringing a book of webinars of the year 2020-21 on COVID-19 and other topics bringing experts together to share knowledge and support efforts to curb the spread of the virus and ensure the continuity of healthcare services.

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**Prof. C.V. Venugopal**  
Former Professor and Head,  
Department of English, Karnataka  
University & Former President,  
Gandhi Peace Foundation,  
Dharwad Chapter

# Relevance of Gandhi Ji for a Healthy Lifestyle

Prof. C.V. Venugopal, Former Professor, and Head of the Department of English, Karnataka University, and Former President of Gandhi Peace Foundation, Dharwad Chapter. Born to a freedom fighters' family from Kolar, Prof. Venugopal shifted to Dharwad to take up teaching and he has guided several research students at Karnatak University in his career of 42 years. He is also an active member of the Gandhi Peace Foundation in Dharwad and even served as its chairman for three years. He has also given a series of radio talks for Dharwad Akashvani.

## Abstract

Mohandas Karamchand Gandhi better known as Mahatma Gandhi taught the essence of righteous principles that will remain relevant for eternity. He devoted his whole life to his country with the two most important and prominent virtues, which are Satya (truth) and Ahimsa (non-violence). Gandhiji's life is a unique example of human service. His ideals and spirit of service are relevant and inspirational for all of us even today.

## Introductory Remarks

Dr. Ishwar V. Basavaraddi, Director, Morarji Desai National Institute of Yoga (MDNIY) deliberated upon the two main pillars of Gandhi's principles are Satya (Truthfulness) and Ahimsa (Non-violence). The seven social sins as mentioned by Mahatma Gandhi in his weekly newspaper Young India on 22nd October 1925, also understood as seven blunders that human society commits which result in Ahimsa and corruption, are as follow: -



**Dr. Ishwar V. Basavaraddi**  
Director, MDNIY

सिद्धांत रहित राजनीति (Politics without principles), परिश्रम रहित धनोपार्जन (Wealth without work), विवेक रहित सुख (Pleasure without conscience), चरित्र रहित ज्ञान (Knowledge without character), सदाचार रहित व्यापार (Commerce without morality), संवेदना रहित विज्ञान (Science without humanity), वैराग्य रहित उपासना (Worship without sacrifice).

The journey of Friday Weekly Webinar started on 2<sup>nd</sup> October 2020, as part of Ayush for Immunity Campaign wherein Prof. C.V. Venugopal delivered an elaborative and informative lecture highlighting the Relevance of Gandhi Ji for a Healthy Lifestyle.

Mahatma Gandhi, the Father of the Nation, taught the essence of righteous principles that will remain relevant for eternity. The two most prominent virtues of Gandhi are Satya and Ahimsa with an emphasis on Love. Ahimsa means love in the action, and Satya means truthfulness which also acts as a synonym for Love.

Gandhi Ji's life is an open book, which is why Gandhi became a symbol of love. And this is what gave him the courage to say - My Life Is My Message. Gandhi emphasized on Love and said that Love is reciprocal, therefore, the best way to find yourself is to lose yourself in the service of others.

## Mahatma Gandhi's Principles

Gandhi Ji once said, "Everyone must be their own scavenger", as long as you do not take the broom and the bucket in your hands, you cannot make your towns and cities clean and a clean body cannot reside in an unclean city. Cleanliness and sanitation were one of the major areas that Gandhi Ji held his ground on. He left no stone unturned to awaken the consciousness of the people of India toward cleanliness.

Gandhi Ji always stressed on the fact that physical activity is the most important. For bodily health, walking and a good diet act as the means to do so. As per the Gandhian principle 'one must take food as medicine to sustain the body. Since every aspect of life has to be intricately balanced to lead a good lifestyle, our body reminds us of overindulgence in the form of adverse reactions to stop them. Bodily Health in itself does not constitute a holistic healthy lifestyle. In the absence of a healthy mind and a feeling heart, real good health does not serve many purposes because good fitness and a healthy body may turn dangerous for others if you get evil ideas into your mind. Therefore, having good thoughts is of paramount importance because unless it is seen in action, your goodness has no meaning. Yogic principles like Pranayama (Breathing Exercises) and Dhyana (Meditation) are known to calm and collect the scattered thoughts of the mind. Focus on the soundness of the mind should be as much as on the

body. The consciousness of the mind can be attained by reading Gita, just as Mahatma Gandhi did whenever doubt arises. A healthy lifestyle is a habit that has to be cultivated with regular practice. Just as a child learns from the elders of the house, self-control must be first practiced by the latter after which the children will follow.

### Conclusion

The session touched upon various facets of Mahatma Gandhi's life - his willpower and how that teaching helped him to live a disciplined life. Mahatma Gandhi has shown us the path; it's we who have to follow it to reap the benefits. It is important to follow a routine in life that is accurate and rigorous. Hence, a person with full consciousness should refrain from committing errors and follow the virtue of Satya which takes us on the path of redemption and upliftment. ■



*The image has been taken from "Relevance of Gandhi Ji for a Healthy Lifestyle" webinar*





**Dr C.G. Deshpande**  
Former Head,  
Department of Psychology,  
University of Mumbai

# Yoga for Mental Health

Dr. C G Deshpande is the Former Head Dept. of Psychology, University of Mumbai. As a socially conscious psychologist and behavioral scientist, Dr. C G Deshpande has achieved excellence in knowledge generation and serves society by making an innovative contribution to the field of mental health.

## Abstract

Mental health is an integral part of human well-being that leads to a holistic state of health. It is an amalgamation of cognitive, behavioral, and emotional well-being. To think, perform, interact and enjoy life, one has to take care of both internal and external upkeep of the body, which means both physical and mental health.

## Introductory Remarks

Director MDNIY elaborated WHO's definition of mental health as "A state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively, and is able to make a contribution to his or her community."

But, the concept of mind according to Shat Darshanas of Indian philosophy such as Nyaya, Vaisheshika, Samkhya, Yoga, etc are different when compared with modern psychology. The philosophical aspect of Yoga explains the 5 Klesha, Avidya, Asmita, Raag, Dvesha, and Abhinivesha which create mental illness. However, Yoga also gives the means to overcome these kleshas with practice like Kriya Yoga (Tapas, Swadhyaya, Ishwar Pranidhana), Chitta Prasadnam (Maitri, Karuna, Mudito, Upeksha), Dharana, Dhyana, etc. that helps in the promotion of mental health through Yoga.

**D**r. C.G. Deshpande delivered an elaborative lecture on 9<sup>th</sup> October 2020 on Yoga for Mental Health focussing upon the various domains of mental issues.

Mental Health is an integral part of human well-being. It connotes a holistic state of health which is simply an amalgamation of cognitive, behavioral, and emotional well-being. WHO has included mental health in the Sustainable Development Goals, realizing its importance in advancing toward Global Development

Goals. Life can be enjoyed to the fullest by taking care of both internal and external upkeep of the body.

## Mental Health in India

As per WHO's Mental Health Report of India, the estimated burden of mental health problems in the country is of the tune of 2,443 Disability-Adjusted Life Years (DALYs) per 100,000 population, and the age-adjusted suicide rate per 100,000 population is 21.1.

By this estimation in India, the economic loss, due to mental health conditions, between 2012-2030, is 1.03 trillion of 2010 dollars. As per the National Mental Health Survey Report (2015-16) supported by the Ministry of Health and Family Welfare, Government of India, with changing health patterns among Indians, mental, behavioral, and substance use disorders are coming to the fore in health care delivery systems. These disorders contribute significantly in the morbidity, disability, and even mortality amongst those affected.

In addition, the ongoing COVID-19 pandemic has amplified the brunt of psycho-social problems like anxiety, stress, and depression among the masses. This unusual condition has rattled the economic, social, and personal situation of people burdening them with many mental disorders.

Since it is believed that Yoga may play a significant role in the psycho-social care of individuals, as well

## India Inc's Hidden Mental Health Problem

**1 in 5 Indians**

will suffer from depression in their lifetime

**42%**

of private sector employees have general anxiety disorder or depression



**150 million**

people across India are in need of mental healthcare interventions, both short- and long-term

**46%**

of private sector employees report extreme stress as a result of their work

as rehabilitation of covid-19 patients in quarantine and isolation, the Ministry of Ayush released guidelines for Yoga practitioners for covid-19.

### Yoga for Mental Health

Globally, Yoga is gaining popularity as an accessible, acceptable, cost-effective management practice for attaining tranquility. Yoga is not just successfully alleviating stress-related problems but is also effective in managing psycho-social problems like stress, anxiety, depression, sleep-related problems, aggression, poor attention, behavioral problems, and more. The last two decades have seen a surge of ample studies which support and accept the effectiveness and importance of Yoga in the treatment and management of mental health problems. Yoga has immense power which empowers people to self-regulate their emotions and behavioral and cognitive processes.

Yoga, when understood by its primal meaning, is inherently a science of spiritual development. The Gita defines Yoga as Samatvam Yoga Uchyate Meaning "Equanimity is Yoga."

The practice of Yoga, hence, aims to bring a person closer to "self-realization" by opening the conscience that helps us achieve correct cognitions about the world. Patanjali Yoga Sutra follows the cognitive-behavioral

approach to existential disorders enlightening us on the objective reality perception.

Maharshi Patanjali advocated five obstacles of mind called panchklesh (पंचक्लेश) wherein panch (पंच) means five, klesh (क्लेश) means obstacle. They are wrong perception (avidya), egoism (asmita), attachment bordering indulgence and entanglement (raga), antipathy (dvesa), and fear of death (abhinivesa), which shall be avoided to perceive our surroundings clearly and develop a healthy mind. Yoga, in practice, helps to manage mental disorders when followed by a proper routine. To alleviate psychiatric problems like anxiety, stress, and depression, and to overcome pain/sorrow following Yogic practices should be exercised:

**Yogasana:** Practicing Yoga brings stability and lightness to the body by developing complete equilibrium of body and mind. It prepares the practitioners for higher practices while at the same time keeping the individual physically fit.

**Pranayama:** It is the practice of breath control that helps to calm & relax the body and mind, bringing stability while destroying the illusions, ignorance, unwanted desires, and delusions of the mind. Most importantly, it balances vital energy (prana).

**Dhyana:** Also called meditation, helps stabilize the mind while elevating concentration, awareness,

and willpower. It also balances cellular and chakra energy developing one-pointedness and furthermore, improving memory and alertness.

**Yoga Nidra:** This is a state of awareness between waking and sleeping enlightened by a guided, careful meditation. A person in Yog Nidra goes into a relaxed state of consciousness while fully aware of his/her surroundings putting the mind in a blanket of the single-focused inner world.

## Conclusion

Regular Yoga practice helps to manage the negative thoughts and emotions while developing the resilience and self-esteem of a person. Taking care of mental health is important because an ill mind breeds a poor physical shell, therefore, on this World Mental Health Day, it is paramount that we support and promote the cause of de-stigmatizing mental health-related problems and practice Yoga for a healthy mind. ■



*The image has been taken from “Yoga for Mental Health” webinar*



**Dr. Chandrakant S. Pandav**  
President, ICCIDD

# Role of Yoga in the Prevention of Epidemics including COVID-19 and Health Promotion

Dr. Chandrakant S. Pandav is a Former Professor & Head of the Department, Centre for Community Medicine, AIIMS, New Delhi, and President of the Indian Coalition for Control of Iodine Deficiency (ICCIDD). He is a Co-Editor of 14 books on Health Sciences and authored about 336 papers, published in various National and International Journals.

## Abstract

The COVID-19 pandemic has become a major cause of stress and anxiety worldwide. The global lockdown has severely affected work, employment, businesses, and the economic climate. Preventive measures along with Yoga should be followed in order to break this chain of COVID-19.

## Introductory Remarks

Director MDNIY articulated about world buckling under the stress of the pandemic. It is the need of the hour that people should open their minds, relax their bodies and prepare themselves for the fight. Strength for fighting against this pandemic will come from within, and Yoga is the only system that gives inner strength.

**D**r. Chandrakant S. Pandav deliberated on Yoga along with the other system of medicines on 16<sup>th</sup> October, 2020 as part of Friday Webinar.

## Namaste “Indian way of Greeting”

Namaste has gained popularity and caught the attention of the world as a practical, safe and hygienic way of greeting people. Hands over the heart in prayer pose, a little bow of the head, a gesture of respect, an acknowledgment of shared humanity, and no touching. Countries across the globe have been taking special measures to stop the Coronavirus infection, and various

methods have been adapted to control this pandemic.

Amid all these useful changes, general people, as well as the global leaders, have been doing something interesting, and that is using the Indian greeting, Namaste. Apart from being the symbol of the 5,000-year-old Indian culture of spiritual benefits. This mudra helps in focusing attention, feeling centered, and bringing poses into balance. This greeting is about acknowledging the divine in one another; it enhances the spiritual potency and attracts divine consciousness (Chaitanya) towards the self. This inculcates an attitude of surrender and gratitude.

## Preventive methods in COVID-19

It's all about resilience whether it is a communicable disease or lifestyle disorder-related disease. When it comes to corona there are two types of resilience:

- External resilience
- Internal resilience



## External Resilience

**Mask:** Wear a mask, and make it a regular task. It gives 60% protection from Covid Virus.

**Hand-Washing:** In case of Physical contact with anyone, wash your hands properly. Everybody is aware



of proper hand washing techniques. Vedas also have verses that teach us these techniques.

**Physical Distancing:** Social distancing should be replaced by Physical distancing as it is a sensitive word and promotes Untouchability. People should maintain distance physically not socially.

## Internal Resilience

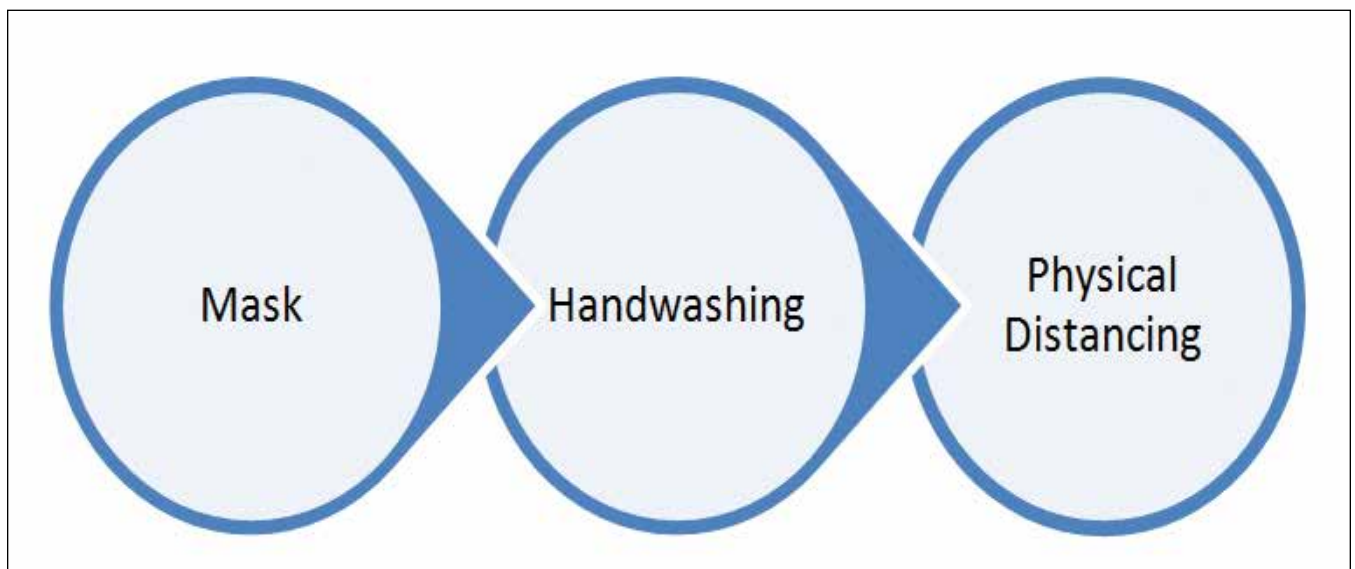
**Mantra Japa/Music/Dance:** All these things help to elevate mood and reduce stress.

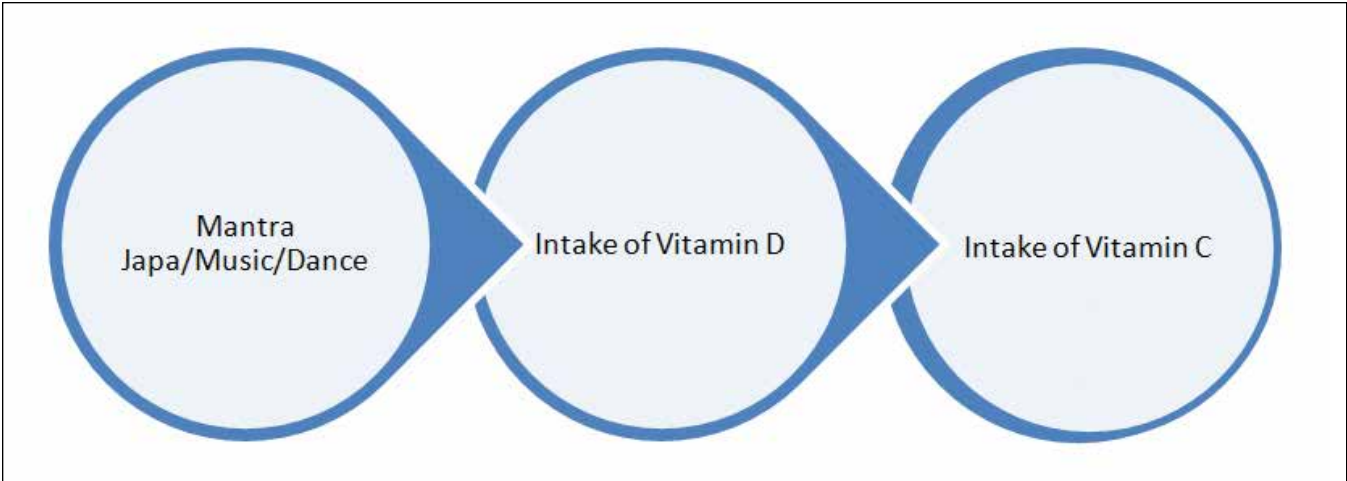
**Intake of Vitamin D:** Sit in sunlight between 10 AM to 1 PM so that body can Synthesize Vitamin D.

**Intake of Vitamin C:** Eat citric fruits like lemon, amla, and orange as it contains Vitamin C.

## Meditation

Sitting in a dark room, adopting a particular posture, and concentrating on any object is not the only way of doing Meditation, it can be done anywhere, whatever you are doing if you are doing it with your full awareness, then it is Meditation.





### Conclusion

Wearing masks, washing hands, and maintaining physical distancing are basic yet effective techniques in preventing the spread of COVID-19. For immunity

boosting, vitamins C and D should be included in the diet. Apart from this, doing meditation and various recreational activities will also help in reducing stress.



The image has been taken from "Role of Yoga in the Prevention of Epidemics including COVID-19 and Health Promotion" online webinar



**Prof. M.A. Lakshmithathachar**  
President of Samskriti Foundation,  
Mysore

# Yoga and the Human System

Prof. M.A. Lakshmithathachar, recipient of the Award of President of India for his outstanding scholarship in Sanskrit and contribution to building a bridge between the Ancient Knowledge Systems and Modern Science. He is the incumbent President of Samskriti Foundation, Mysore, and is presiding over many organizations in multiple positions such as Chairman, Centre for Literary Research, Indian Institute of Ayurveda and Integrative Medicine (IIAIM), Foundation for Revitalization of Local Health Traditions (FRLHT), Bangalore; Member, Academic Council, & Visiting Professor, SVYASA University, Bangalore; and he is also Senior Honorary Advisor, FRLHT, a center of excellence under the Ministry of Environment and Forests, Bangalore; among other positions.

## Abstract

Immunity plays an important role in keeping the entirety of the human system strong. For this, one should keep both physical and spiritual components intact. This can be achieved by following the path of Ashtanga Yoga. The eight limbs method helps to bring harmony between the physical and spiritual components.

## Introductory Remarks

Director MDNIY deliberated upon the role of traditional treasures that will help us overcome the pertinent threat of the COVID-19 pandemic by improving our immunity and maintaining high standards of leading a healthy life. Yoga is not just an ancient traditional practice; it is a discipline that has the power to regulate the whole of human systems. It aims at bringing relaxation through the means of meditation and a set of physical practices performed in sync with breathing.

**A**s a part of the Friday's Weekly Webinar series dated 23<sup>rd</sup> October 2020, an elaborated and informative lecture was delivered by Prof. M.A. Lakshmithathachar where he discussed "Yoga and the Human System".

## What is a Human System?

A human system is a collection of elements or components organized for a common purpose with its own goal and mode of functioning. Breaking down the components of a system into inputs, outputs, and feedback mechanisms; can be easily compared with the human shell that is the mind and the body.

A system is always carried out by the amalgamation of various subsystems that work together to bring out the overall function of the main system. A human body is just like computer hardware, as the latter has input as the keyboard, mouse, etc., and output monitor, speaker, printer, etc. A human body is composed of eyes, ear, nose, and tongue, skin as the inputs, and mouth, fingers, hands, and legs as the outputs. As the computer subsystems have hardware and software, a human subsystem consists of physical and spiritual components. The Taittiriya Upanishads explain these components, several of the physical and spiritual aspects are as follows: -

The components are mutually dependent and therefore constantly influence each other. Without the mastery of physical components, one can't attain perfection in the spiritual component. A tradition named Nathamuni's Yoga tradition acts as a device to achieve the perfection of the complete human system.

To understand the human system, one has to learn the kinds of pleasure that often influence our actions. Two

## Maintenance of physical components of human system

### The types of Yama explained

Brahmacharya	• Renouncing sensual pleasures
Ahimsa	• Desisting from troubling others
Satya	• Speaking the truth
Asteya	• Desisting from stealing
Aparigraha	• Desisting from collecting material which are against our system

kinds of pleasures are spiritual and sensual pleasures. A person takes the bottom-up method: upgradation, to rise from physical to spiritual pleasure and in contrast, clips the top-down method: degradation, moving from spiritual pleasure to physical pleasure. One of the paths in Yoga is developed by Maharishi Patanjali. He gave the eight limbs method which is better known as the Ashtanga Marg. The eight limbs method includes the components of yama, niyama, asana, pranayama, pratyahara, dharana, dhyana, and samadhi. The physical and spiritual components of the human system can be maintained by four methods of ashtanga (external and internal).

The path to the spiritual experience could be attained through the path of Ashtanga Yoga and its components.

The eight limbs have the subdivision such as yama which includes (brahmacharya, ahimsa, satya, asteya, aparigraha) and niyama (svadhyaya, shouca, santosha, tapas, atmaniyama).

The asanas which are the Yoga postures and Pranayama which are the breathing exercises are of great significance for creating conducive mechanisms for a healthy human body. The internal methods can pave the way for bringing spiritual happiness and can be connected with the supreme power. Pranayama and Pratyahara together enable control of the mind so that it will get focused on the supreme brahman without wavering. This is called Dharana. Dharana is 'Nirantara Smriti Santana Roopa' which means continuously thinking of the supreme brahman only.

### The types of Niyama explained

Svadhyaya	• Studying ones own branch of veda
Shoucha	• Cleanliness • Consists of two types - external and internal • External cleanliness is keeping the body clean with the help of mud and water. • Internal cleanliness is keeping ones own mind pure
Santosha	• Contentment
Tapas	• Observing the vows, etc
Atmaniyama	• Single minded attachment to the Supreme Brahman



# Maintenance of spiritual components of human system

## Four internal methods of Ashtanga Yoga

Pratyahara

Dharana

Dhyana

Samadhi

Dhyana helps us in preserving the human system and maintaining the higher standards of spiritual happiness. Additionally also, it helps to keep the body and mind healthy, especially during the COVID-19 pandemic. The viruses attack the weak systems; therefore, strong immunity is needed in order to keep the entirety of the human system strong.

### Conclusion

The proper functioning of the human system can be maintained by understanding and boosting immunity. The short-term goal is to achieve the ultimate long-term goal of leading a healthy lifestyle. ■



*The Image has been taken from "Role of Yoga and the Human System" online webinar*



**Dr. Nimesh Gupta**

Head of Vaccine Immunology  
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National Institute of Immunology,  
New Delhi, India

# Immunity and Infection in the Context of Pandemic

Dr. Nimesh is a virologist and immunologist; engaged in the studies of immunological determinants responsible for the establishment of long-term protective immunity. Moreover, in some extensive collaboration with multiple national and international institutes across the globe, he has established a cutting-edge human immunology and T-cell immune-profiling platform at the National Institute of Immunology.

## Abstract

Immunity is the ability of an organism to resist a particular infection or toxin by the action of specific antibodies or white blood cells. We all are constantly exposed to a plethora of pathogens in multiple ways. However, our immunity plays an important role in overcoming diseases and infections. One should strive to maintain a healthy immune system by the methods of regular exercise, maintaining adequate mental health, lifestyle, hygiene, and nutrition.

## Introductory Remarks

Director MDNIY laid emphasis on following the physical and social distancing norms with handwashing & sanitizing directives, as instructed by the Ministry of Ayush are important for protection against COVID-19. Daily exercise is essential to strengthening immunity in which Yoga plays a vital role and act as a useful mean to fight against the pandemic.

**D**r. Nimesh Gupta gave an astounding lecture on “Immunity and Infection in the Context of Pandemic” on 30<sup>th</sup> October 2020.

## Importance of Immunity

Immunity, by definition, refers to the ability of an organism to resist a particular infection or toxin by the action of specific antibodies or sensitized white blood cells. The Immune system, a complex web of cells, tissues, and organs, plays a crucial role in the upkeep of the human body. It protects our system against harmful substances, germs, and cell changes that could make a person ill or potentially lead to death.

Our bodies are constantly exposed to a plethora of pathogens throughout our lives and simultaneously it develops immune responses to these pathogens in multiple ways. One way is to catch the infection which leads to sickness and eventually recovery. In this process, immunological memory is developed, something that in the case of natural infections persists for long. There is a fair chance of developing this memory even without getting sick, which is widely known as an asymptomatic infection. It is a consequence of the Immunity or Immune System which is an organization of organs, cells, and proteins that orchestrate together against any extraordinary invasion in the body. The two components of immunity are as follows: -

- **Innate Immunity:** It consists of the activation and participation of pre-existent mechanisms including the natural barriers (skin and mucosa) and secretions.
- **Adaptive Immunity:** It is targeted against a previously recognized specific microorganism or antigen.

Pathogen Destruction mainly happens in three ways: -

- **Phagocytosis:** Swallowing of the pathogen or



# Immune Components

## Innate Immunity

- **Physical barriers** – skin, gastrointestinal tract, respiratory tract, nasopharynx, cilia, eyelashes
- **Defense** – secretions, mucus, bile, gastric acid, saliva, tears, sweat
- **Non-specific immune response** – inflammation, complement activation
- **Immediately act against anything foreign to body**

## Adaptive Immunity

- **B cells** – antibody production, humoral immunity
- **T cells** – cell mediated immunity, humoral immunity
- **Highly specific immune response** – recognize the pathogen and its different molecular structures.
- **Immune memory**

*The image has been taken from "Immunity and Infection in the Context of Pandemic" online webinar*

killed by intracellular enzymes.

- **Direct Killing of The Infected Cell:** Cells are killed by secretion of cytotoxic molecules.

Antibody-Mediated Clearance: Antibodies attach to the virus and neutralize it for further interaction with cells.

The spread of the virus infections can take place through various means. However, the immune system responds to it. The stages which are involved in it include:

- Transmission
- Infection
- The gradual development of specific antibodies
- Immune memory.

## Origin and Dynamic of Pandemics

Two deadly pandemics of history:

- The Plague in the 14th century (Black Death)
- The 1918 Influenza pandemic.

Most of the new pandemics have originated from the zoonotic transmission of pathogens from animals to humans; the prevalent Covid-19 pandemic is an

example of one spread of a deadly virus.

## Strengthening the Immune System

Five requirements to maintain a healthy immune system includes exercise, mental health, lifestyle, hygiene, and nutrition.

## Effect of Exercise on our Immune System

Heavy exercise can negatively affect the body, while acute exercise stimulates the interchange of innate immune system cells and components between lymphoid tissues and the blood compartment. Stress hormones can suppress cell function indicative of intense metabolic activity that does not reach high levels during short-duration exercise. Also, the Immune system reflects the magnitude of physiological stress experienced by the exerciser. Therefore, it is believed that heavy exercise may lead to immune dysfunction due to increased metabolic activity that puts stress on immunity. Moderate exercise provides good immune surveillance and a lower risk of illness.

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Two deadly pandemics of history:

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system reflects the magnitude of physiological stress experienced by the exerciser. Therefore, it is believed that heavy exercise may lead to immune dysfunction due to increased metabolic activity that puts stress on immunity. Moderate exercise provides good immune surveillance and a lower risk of illness.

Yoga immunology continues to evolve but much remains to be done to understand the inter-disciplinary aspects of Yoga in the development of immunity. Yoga is understood as a moderate form of physical activity that also impacts our mental health. The advancement in the field of human immunology and the development of multi-omics approaches may provide new insight into the impact of Yoga on the immune system.

### Conclusion

It is paramount to have a healthy immune system. It can be achieved through a balanced amalgamation of moderate exercises and good nutritional values on a daily basis. ■



*The image has been taken from “Immunity and Infection in the Context of Pandemic” online webinar*



**Dr. P. N. Ravindra**

Associate Professor,  
Centre for Consciousness Studies,  
Department of Neurophysiology,  
NIMHANS, Bangalore

# Sleep & Immunity: Role of Yoga during Pandemic

Dr. P.N Ravindra is a physiologist with a special interest in neurophysiology, sleep, and Yoga. He has presented papers at various prestigious conferences in India and abroad and conducted various workshops/seminars on Yoga, sleep, and stress management at various institutes and universities in India and abroad. He is also associated as an investigator with various independent research projects and in collaboration with other prestigious institutes.

## Abstract

Sleeping is one of the best-known methods of Healing. Sleep is an essential function, and plays a primary role in bringing about optimal health and well-being for all living beings. It salve the mind, restores the body, and bolsters nearly every system in the body, henceforth, working as a mileage factor that boosts our immunity.

## Introductory Remark

Director MDNIY talked about the necessity of adequate sleep as an essential component of life. Sleep helps reset the metabolism, restructures the brain network, and modulates immunity, helps to learn, and memorize. Therefore, sleep empowers immunity and facilitates healing as well. However, stress, disease conditions, erratic sleep timings, and a lifestyle misaligned with a circadian rhythm may bring about sleep alterations and reduce immunity.

**A**s part of Friday Weekly Webinar Series, an elaborative and informative lecture was delivered by Dr. P. N. Ravindra discussing the relevance of “Sleep & Immunity: The Role of Yoga During Pandemic” on 6<sup>th</sup> November 2020.

## Importance of sleep for a healthy lifestyle

Sleep is a universal phenomenon of the animal kingdom wherein it has many psycho-social impacts on basic survival. Duration of sleep varies from animal to human and person to person. For a human being, the

average duration of sleep is believed to be 6-8 hours, but currently, the narrative has evolved from duration of sleep to “Optimal or Adequate Sleep” which is not a system, but very person-specific. An adequate amount of sleep ideally rejuvenates a person, psychologically to face challenges. The various stages of sleep affect our bodies differently, wherein good sleep is endowed with light sleep, deep sleep, and dream sleep stages which bring about changes in hormonal profile like decrease in cortisol, increases in growth hormone, etc. These hormonal profiles cross-talk with the immune system and strengthen leaving them fresh and active for their daily activities, it can even be 3-4 hours for an individual. Therefore, it is up to each individual to judge their adequate sleep patterns, which are subject to changes that may vary depending on the individual lifestyle.

Sleep is a ‘Complex Behavioural State’ essential to maintaining physical, emotional, and mental well-being.

Sleep results from the complicated interconnection

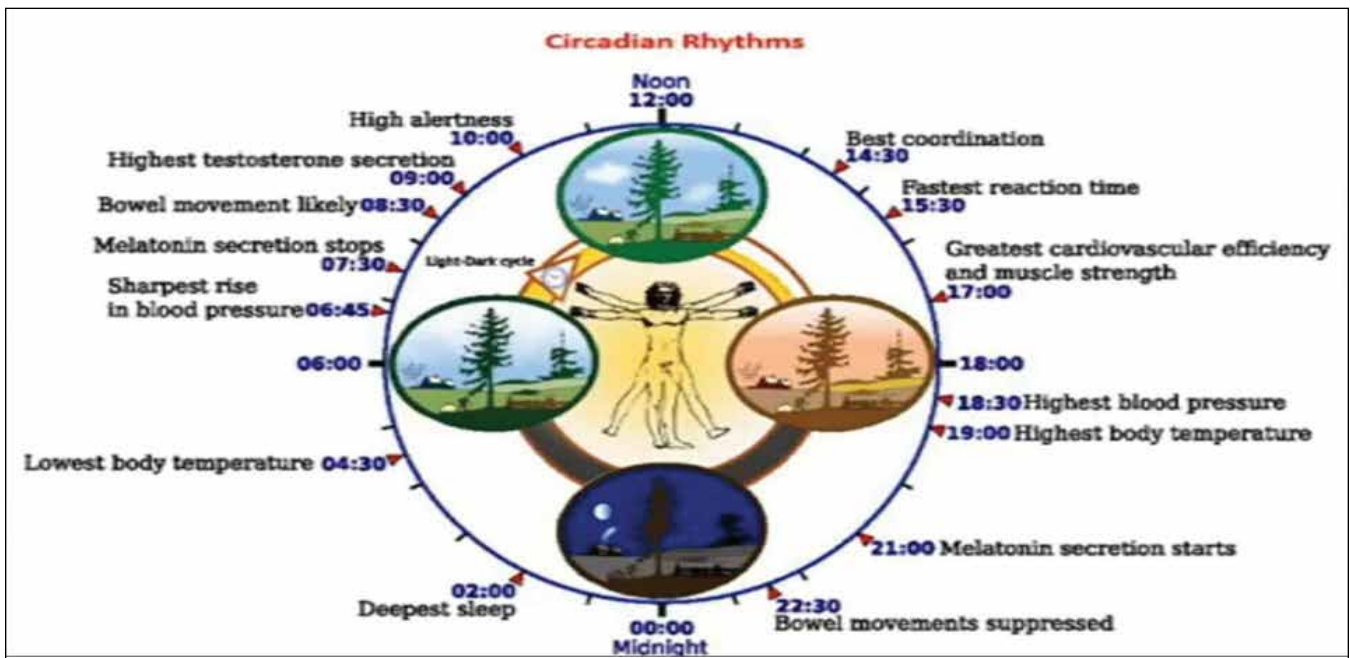
of various systems in our body. It can be Neural, Endocrine, Homeostatic and Circadian regulation, or some psychological aspects. As per the behavioral definition of sleep, it is a reversible behavioral state of perceptual disengagement from and unresponsiveness to the environment depending on four criteria: reduced motor activity, reduced responses to stimulation, stereotypic postures in humans, and relatively easy reversibility, in the absence of which a person could be in a comatose state.

### Homeostatic Sleep Drive and Circadian Rhythm

It plays an essential role in our wake and sleeps behaviors. As our day progresses, our homeostatic drive for sleep keeps increasing, which means the activities we undertake throughout a day determine the sleep pressure. Building up homeostatic sleep pressure is very important for our nocturnal sleep. Circadian Alteration is the variations in our physiological and psychological aspects that happen because of sunrise and sunset. The circadian variation occurs as our wake

### Sleep Deprivation

A proper sleep architecture represents adequate sleep wherein a sleep episode begins with a short period of NREM (Non-Rapid Eye Movement) stage 1, progressing through stage 2, followed by stages 3 and 4, and finally to REM (Rapid Eye Movement). Although individuals do not remain in REM sleep for the entire night, the body cycles through the stages of NREM and REM throughout the night. Dr. Ravinder explains how the Ontology of Human Sleep changes from the polycyclic sleep pattern of new-born to the Monocyclic adult pattern. Various reasons can rupture the above-mentioned sleep patterns leading to Sleep Deprivation which in turn reduces our immunity, concentration, motivation, and motor skills, and makes us more irritable with mood alterations and lapses in attention. Moreover, a faulty lifestyle can lead to the accumulation of toxins in our body, which when propelled by sleep deprivation will lead to a depressive mood and directly affect our Immunity.



propensity is relatively higher in the daytime (mostly) and comes down by the sunset due to an increase in the production of Melatonin.

Three factors that account for good sleep are:

- Increased melatonin levels
- Decreased cortisol level

- A dip in the core body temperature inside the body.

Sleep has a direct relationship with maintaining the upkeep of our immunity wherein the crucial process of the immunological synapse (immunity developing memory against pathogens) takes place while we are asleep.

### Sleep Hygiene

Sleeping disorders like Insomnia, Sleep apnea, etc. have detrimental effects on the body rendering it less productive for day-to-day activities. Sleep hygiene can be maintained by practicing and following Yoga. Fixing a sleep schedule is very important to creating a routine.

In case of a heavy or stressed state of mind, Yogic practices like Pranayama – Brahmari/NadiShodhana (Deep Breathing Exercises), Dhyana (Meditation), and the Savasana can help to overcome restlessness and ‘let go’ before going to bed. This can be done 40 minutes before bedtime.

### Conclusion

Yoga Nidra induces good sleep. Moreover, sleep is a result of our activities during wake times; therefore one should mind their activities throughout the day. But in the case of sleep disorders, certain Yoga practices would help reduce stress and mend psycho-social problems related to such diseases. ■



*A glimpse of the image has been taken from the “Sleep & Immunity: Role of Yoga during Pandemic” online webinar.*



**Dr. Kamini Desai**  
Executive Director,  
Amrit Yoga Institute,  
Florida, USA.

# Keep Healthy Deep Rest and Strong Immunity for Busy Lives

Dr. Kamini Desai is the author of the book; Yoga Nidra: The Art of Transformational Sleep. For the past 30 years, Ms.Kamini has taught worldwide, drawing on the ancient wisdom of Yoga as verified by science and western psychology. She is one of three founding Directors of the International University of Yoga and Ayurveda with Dr. Vijay K Jain, MD, and Dr.ShekharAnnambhotla.

## Abstract

As lives get busier, people often forget that there is a life to live. The hectic schedules of busy lives and the stress accumulated make everyone prone to diseases and less concerned about health.

## Introductory Remarks

Director MDNIY highlighted that the strong immunity boosters Ahar, Vihar, and Nidra are considered as the three principles that bring about healthy lifestyle changes. Yoga Nidra is a sleep-based meditation technique that supercharges immunity, reverses stress, maximizes the restorative effects of sleep, and optimizes your ability to stay healthy. 45 minutes of Yoga Nidra is said to be as restorative as three hours of sleep and is ideal for balancing our increasingly fast pace of life.” Yoga Nidra boosts not only your physical immunity but also minimizes the effects of stress, anxiety, and depression.

**D**r. Kamini Desai gave an informative lecture on “Keep Healthy: Deep Rest and Strong Immunity in the Context of Pandemic,” on 13<sup>th</sup> November 2020.

## Yoga Nidra

Yoga Nidra is a powerful meditation technique. It is a form of meditation that is easy because the practice is based on something that the human body is already tuned to which is falling asleep. During sleep, people go deeper through the brain waves – their thoughts move away from them, and in this procedure, one

naturally enters into a gap between the person and their thought processes called the “Twilight Zone”. However, that gap doesn’t come easy to everyone as many face difficulty falling asleep.

Yoga Nidra follows the same pattern of brain waves but rather than falling asleep, here, people take deep rest in the twilight zone wherein meditation happens naturally. Yoga Nidra is a kind of meditation that is based entirely on the biology of the human body and sleep. The only thing one needs to do during Yoga Nidra is not to fall asleep and even if one does, there are plenty of restorative benefits that the body gathers.

## Stress and Tension

Stress is one of the root problems that emerge out of extremely hectic lifestyles. A person builds up certain ‘internal’ and ‘external’ pressures from their busy life schedules. The pressure of measuring up with peers, and feeling responsible for the care of their loved ones constituted internal pressures. Whereas the environmental or surrounding pressures like the current state of pandemic build up external pressures. All these combined together, put heavy stress on body. Tension is not a bad thing, as the human body works when they tense their muscles.” The problem arises



when an individual builds up this pressure day by day, without balancing it with the amount of sleep that their body needs. This generates a backlog of excessive unreleased tension propelling various stress symptoms like - headaches, back pains, sleep, and psycho-social problems.

Almost 80% of doctor visits in the United States are stress-related. Human bodies are built to be under the highest amount of stress for not more than 60- 90 seconds at a time. But people have somehow learnt to live in high levels of stress for much longer minutes. This ultimately turns the 'Temporary State of Stress' into a 'Chronic' one which directly affects the important functions of the body like digestion, reproduction, and blood flow, causes dilated pupils and irregularities in heart rate. The chronic state of stress weakens the immune system leaving them vulnerable to allergies and auto-immune diseases. The main culprit of chronic stress is "Cortisol" - a stress hormone released when people are under a lot of pressure. At first, it actually brings strength to the body, but over time this hormone leaves us vulnerable to viruses, flu, diseases, and inflammation-related issues. If a person were to address these symptomatic issues individually - headaches, sleep disorders, digestive irregularities,

fertility, and recession of immunity, it would take a lifetime. But by addressing the root cause of all these symptoms - stress, people can tackle all these issues simultaneously - which is why people do Yoga Nidra.

### Benefits of Yoga Nidra

It helps in keeping the body strong and the mind at peace and also makes the body more resilient enough to fight stress, diseases, and other pressures of life.

### Difference between Yoga Nidra and Other Relaxation Techniques

Many of these techniques stop at relaxation and release the accumulation of tension in the body but don't teach how to be more aware and observant to prevent reaccumulation of tension. However, Yoga Nidra works at the root cause of the problem.

### Conclusion

Yoga Nidra sits in a much larger spiritual context that calms the mind to generate awareness that is beyond the regular consciousness. Therefore, the true purpose of relaxation is realized through Yoga Nidra. ■



The image has been taken from "Keep Healthy: Deep Rest and Strong Immunity for Busy Lives" online webinar



BK Shivani

Yoga Expert, Brahma Kumaris

# Role of Nidra and Immunity in the Context of Pandemic

BK Shivani is a practitioner of RajYoga Meditation of the Brahma Kumaris for over 22 years. Her practical application of spiritual principles on the TV program 'Awakening with Brahma Kumaris, for over 13 years has empowered people to overcome issues of emotional distress, depression, and relationship conflicts. In March 2019, she was awarded the prestigious Nari Shakti Puraskaar, the highest civilian honor for women in India, for her role in transforming human behaviors. She has been appointed as Goodwill Ambassador by the World Psychiatrist Association.

## Abstract

Staying healthy during the COVID pandemic is a priority. So besides following the appropriate guidelines, certain conscious decisions are needed about sleep pattern and immunity. Getting a good sleep at night is not only about duration but also about quality and a regular schedule. As for the immune response, we are focused on physical immunity, but are we also immune to emotional infections like fear and anxiety. Everybody needs powerful sleep to manifest their destinies. A good dose of Nidra (sleep) is essential to produce any amount of productive work throughout the day. Most people forgo sleep on the behest of work and other activities unaware that this one mistake, brings down the efficiency of one of the most important systems of our body, that is, immunity. A healthy life is an amalgamation of an appropriate diet, a structured lifestyle, and good sleep - Ahar, Vihar, and Nidra.

## Introductory Remarks

Director MDNIY explained the seven Systems of therapy - Ayurveda, Yoga and Naturopathy, Unani, Siddha, Homeopathy, and Sowa Rigpa. People can combat the coronavirus pandemic in India with these systems. These are included in the protocols launched by the Ministry, which are used by health care experts. The three steps being undertaken by MDNIY to contain the pandemic crisis, which are:

- Directly teaching Yoga to COVID-19 patients.
- Aiding quarantined individuals to overcome stress and anxiety-related issues through Yoga.
- Conduct research works that aim to aid healthcare workers and all those who are battling the virus by studying it.

An informative session was delivered by BK Shivani on 20<sup>th</sup> November 2020 wherein she highlighted the role of "Nidra and Immunity in the Context of Pandemic".

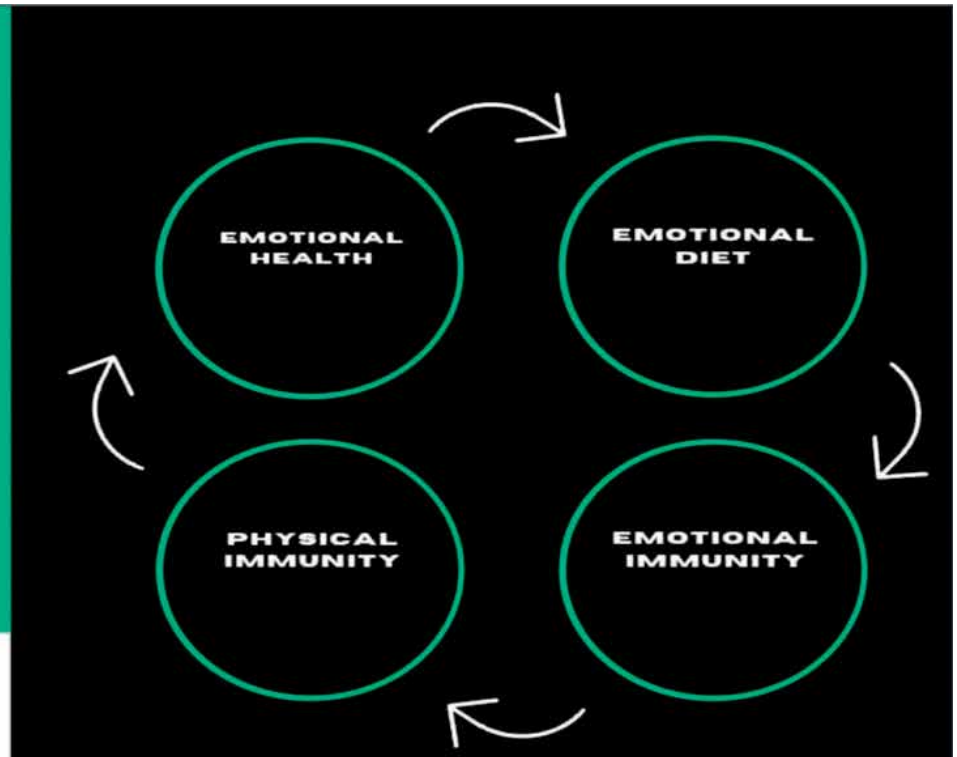
For more than 6 months now people have lived through a time of great unrest. From the beginning of the pandemic, people were told to take care and don't panic. Though everyone did learn to take care, along the way the 'don't panic' part got lost in translation. People have learned to keep themselves safe from COVID-19 but not from the panic in their thoughts. Along with the virus, several other problems like - lockdowns, work pressures, and personal and emotional burdens have surrounded everyone with an atmosphere of fear and panic.

Emotional Pollution and its vibrations prevails in the air, which impacts psycho-social well-being. Therefore,





# THE EMOTIONAL HEALTH CYCLE



there has been a rise in depression, anxiety, and stress problems among the masses. Emotional health is an integral part of safety mechanisms, wherein physical immunity guards against viruses, but emotional immunity helps to battle problems induced by the COVID-19 crisis. Fear and panic regress emotional immunity but at the same time hamper the power of physical immunity in keeping diseases at bay; both of these need to grow hand in hand.

Sleep plays a vital role in ensuring the emotional and mental health wherein Yoga and Nidra energize the body. People these days have become prone to putting sleep secondary to work which produces no quality work. Yoga stands for lifestyle discipline. There is an immense power in discipline and a routine of good sleep is what ensures a day full of productivity.

**Atma Nirbharta:** (Self-Reliance) of actions which means that one should never blame people or situations for how they feel. Anger, resentment, and negative thoughts drain emotional health constantly but minding the healthy chain of thoughts brings good sleep at night.

Sleep deprivation can put your health and safety at risk.

Sleep and the waking hour should be scheduled over a time that revitalizes the human core to the maximum. The highest energy time of the day, which is 4 to 5 AM - is known as Amrit Vela or Brahma Muhurat. During this time the vibration and energy in nature are at their best, therefore, Practicing meditation and Yoga at this hour refines intuition, clarity, and decision-making power. Experimentation is the key; spirituality is experimenting with the inner world. To observe a divine experience, the human body sets into a clock over time with regular routine and practice. How a farmer sows seeds as per appropriate season and time, in a similar way, every individual needs to cultivate definitive sleep patterns based on their routines and discipline of time.



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Decluttering the mind is imperative to determine “How well we Sleep.” At least an hour before, sleep one should strictly keep them away from negative thoughts, this means bringing the brain from the Beta (active) stage to the Alpha (slow dream state) and then simultaneously slipping into the Delta (deep sleep state).

Creating and remembering a certain set of “Sankalps” (Oaths) every night before sleep. These Sankalp are what determine the first thoughts that run through the mind in wakefulness and henceforth go about

influencing the whole day creating a cycle of thought. Sankalp can be thoughts like: “I am powerful, peaceful, healthy, and in command of my actions.”

### Conclusion

Sleep is a vital component of good health, it helps both body and mind to function at their optimal level. Not getting enough quality sleep could raise the risk of many diseases and disorders. ■



*The image has been taken from “Role of Nidra and Immunity in the Context of Pandemic” online webinar*





**Prof R.S. Bhogal**

Joint Director of Research,  
Scientific Research Department,  
Kaivalyadhama Yoga Institute,  
Swami KuvalyanandaMarg,  
Lonavla, Pune

# Yoga for Better Sleep

Prof. R. S. Bhogal is a post-graduate in psychology and has many years of research and teaching experience. He is the author of- i) Psychophysiology of Traditional Yoga (in Korean), ii) Yoga and Modern Psychology (in English and German), and iii) Yoga and Mental Health and Beyond (in English). Prof. R. S. Bhogal is credited with many scientific papers and is a recipient of the Shivram Apte award of the Fergusson College, Pune, and the Bharat Jyoti award by IIFS, New Delhi. He is also a meditation expert with a calm poised temperament.

## Abstract

“Yoga Practice without a sound sleep is as futile as washing mud with soap”. Sleep can never be substituted with any amount of meditation or Dhyana. The only proper way of body and mind regeneration is through a bountiful sleep overnight that brings complete relaxation to human systems. Yoga undoubtedly helps bring about good sleep when practiced timely and regular. It is a lifestyle discipline that optimizes our schedules and ability to fall into a better and plentiful sleep every night.

## Introductory Remarks

Director MDNIY talked about the importance of Hatha Yoga Pradipika which reflects how mind and intellect correspond perfectly well with prana - the energy dynamics of the body which creates a balanced mind-body interaction. Therefore, calming down the mental activities through Raja Yoga - meditation practices (dhayana, samadhi, etc.) and correcting pranic dynamics through hatha Yoga practices would result in an ideal mind-body interaction that in turn regulates all our psycho-physiological processes including sleep, with this our waking cycle also becomes normal.

**A**s a part of the Friday Weekly Webinar held on 27<sup>th</sup> November 2020, an informative session was delivered and discussed wherein Prof. R.S. Bhogal discussed about the importance of Yoga for better sleep.

There is a lot of misconception among people that they can substitute sleep with certain practices or 20 min. of meditation or Shavasana equals 7 hours of sleep, which is entirely false. Nothing can substitute a good amount of sleep that our body needs on a daily basis. Yoga alone is never enough, i.e., before Yoga,

everyone should have a sound sleep, and also before sleep, everyone should have a sound Yoga.

## Effect of Sequential Cycles of Sleep

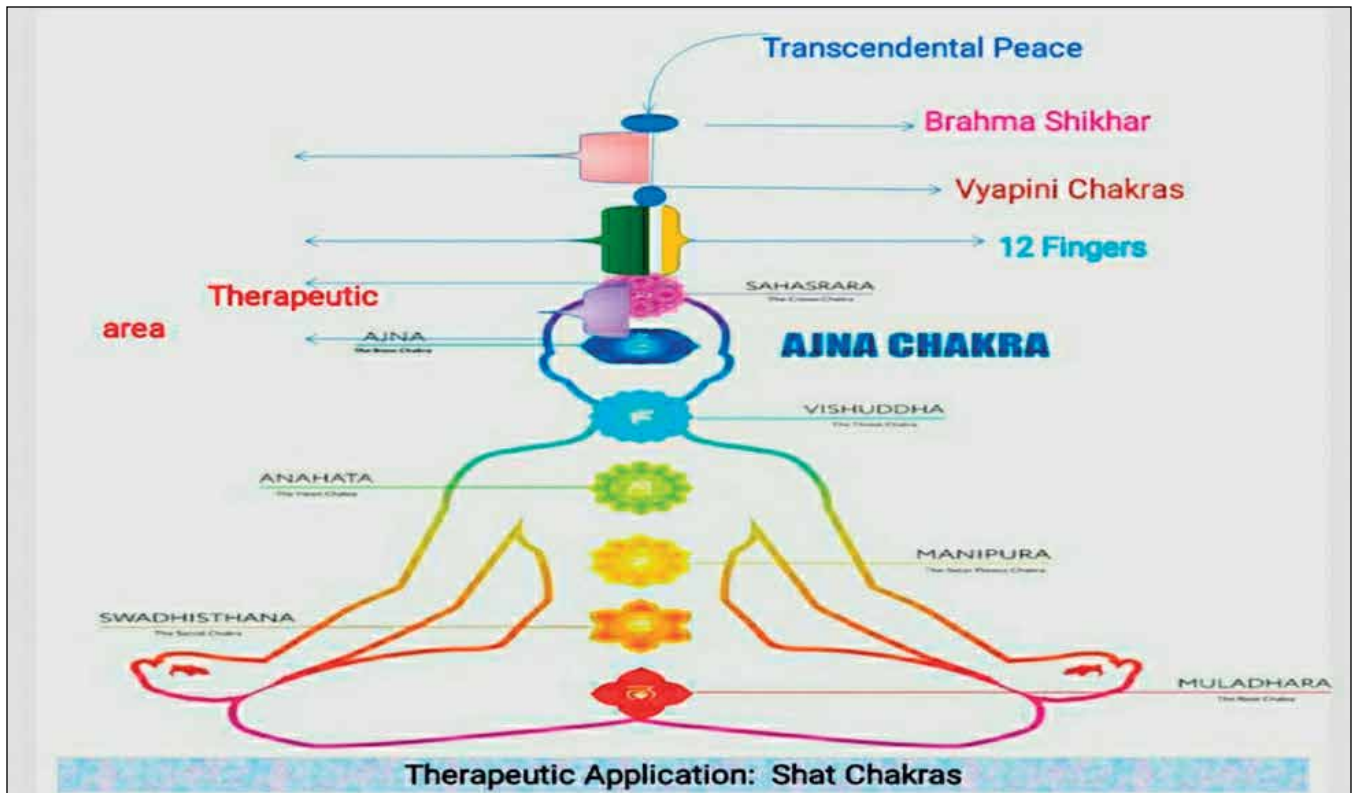
After a wakeful state, the cycles of sleep include: -

- **Light Sleep** - good for autosuggestion
- **Deep Sleep** - regeneration from all the loss due to wearing and tear
- **REM** - for mental Catharsis, where people have dreams, is helpful in neutralizing “day residue”, and repeat.

The awareness is of three kinds that influence the quality of sleep is called as the AkashaTraya, namely;

- **Bahyakasha:** Awareness of whatever is happening around through touch receptors, pressure changes, sensory experiences, and sensations felt through all senses (PraYoga)
- **Antarakasha:** Interoceptive Awareness comprising proprioception and vestibular awareness, i.e, feeling the body as it is without inhibitions. (SampraYoga)
- **Cidakasha:** Non-muscular and non-interoceptive





## Yogic Management of Sleep

Some of the basic philosophical background preparation can be done through Patanjali Yoga & Bhagwad Gita, Immediate Management of Sleep; Slow Eye Movement stage-1 Sleep and Lucid Dream. Long-term Management through Kriya Yoga - which

as per Patanjali Yoga Sutra attenuates Kleshas, (the root cause of all existential problems) and creates a meditative mental set; Pranayama & Meditation - for complete relaxation are some of the aspects.

The Yoga practices enhance internal awareness through interception that interlinks physical level and

## Gāyatrī Mantra

ॐ भूर्भुवः स्वः  
तत्सवितुर्वरेण्यम्  
भर्गो देवस्य धीमहि ।  
धियो यो नः प्रचोदयात् ॥ ॐ

Om Bhūrbhuvah Swah  
Tat Saviturvarenyam  
Bhargó Devasya Dhīmahī ।  
Dhiyoyo nah Prachodayat ॥ Om

the deeper states of consciousness giving relaxation useful for better sleep. In addition to this, the recitation of om - Omkara, and Gayatri mantra stimulates parasympathetic ganglia on either side of the spinal cord, resulting in a parasympathetic shift, culminating in an abstract awareness of ChittaVishranti.

### Conclusion

Sleep plays a crucial role in good health and well-being. Waking up early morning helps the individual develop a good schedule that becomes a recurrent habit. Any

person who wants to fix a waking time will have to develop 'Anushasan' (discipline). The human body only needs a limited amount of sleep depending on body composition and work schedules. Hence, one should schedule sleep according to the activities performed. Great Personalities like Guru Gobind Singh, used to wake at 3 am, but were still able to work productively throughout the day." Therefore, it is paramount to bring discipline to the lifestyle to reap the benefits of Yoga for Better Sleep. ■



The image has been taken from "Yoga for Better Sleep" online webinar







**Dr. Piyush Ranjan**  
Additional Professor  
Department of Medicine, AIIMS

# COVID-19 Effect on Lifestyle Re- lated Diseases

Dr. Piyush Ranjan has been working in various academic capacities at the AIIMS, New Delhi for the last decade. Dr. Ranjan is actively involved in increasing public awareness in the field of Lifestyle-related diseases, Metabolic Syndrome, Obesity, and Arthritis. Moreover, he has delivered public lectures for armed forces and common people several times in the past in addition to his numerous participations in health-related talk shows on National Television.

## Abstract

The COVID-19 pandemic has altered the usual routines of our lives, hauling over our lifestyle habits and subjecting us to a greater risk of catching as well as worsening existing lifestyle-related diseases. Lifestyle diseases are some bodily and psychological ailments that are primarily based on the day-to-day habits of people. These habits are activities that push us towards a sedentary routine which can possibly land us with a number of health issues. This in turn can lead to certain chronic non-communicable diseases that can have near life-threatening consequences.

## Introductory Remarks

Director MDNIY recalled how COVID-19 has brought many behavioral changes in people's daily activities, eating and sleeping habits. These behavioral changes have the potential to act as independent risk factors for metabolic complications such as obesity, diabetes, and cardiovascular disorders. Besides, the presence of metabolic disorders puts an individual at a higher risk of getting infected with Covid-19. The identification of lifestyle management strategies for the prevention of Covid-19 and maintenance of optimal health is the need of the hour. Furthermore, Yoga is a promising lifestyle approach that should be promoted as a one-stop solution for the prevention of Covid-19 by building immunity, management of lifestyle-related disorders, and psychological distress across different population groups.

An elaborative lecture was delivered by Dr. Piyush Ranjan wherein he shed light on the topic "Covid 19: Effect on Lifestyle Related Diseases" on 4th December 2020.

COVID-19 has resulted in collateral damages in addition to the deadly infection, which directly affects people's lives while causing lifestyle diseases. The global trends of impacts and restrictions induced by the pandemic on the day-to-day lifestyle of people, using an international study from China, Italian surveys, and Google analytics are as follow: -

Trends induced by Covid-19 affect Lifestyle related behaviors

- Eating
- Activities
- Sleeping

With the limited accessibility to fresh produce during the coronavirus lockdown, even the home-made cooking habits in addition to amplified junk/fast food consumption deteriorated further with increased intake of sweet beverages and meal irregularities of the

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## Impact of restrictions on Lifestyle: Global Trend

Social distancing and restrictions to contain COVID has led to changes in lifestyle related behaviors.

Impact of the COVID-19 Epidemic on Lifestyle Behaviors and Their Association With Subjective Well-Being Among the General Population in Mainland China: Cross-Sectional Study

Eating habits and lifestyle changes during COVID-19 lockdown: an Italian survey

Laura Di Renzo<sup>1†</sup>, Paola Guàrdini<sup>1†</sup>, Francesca Pivari<sup>2†</sup>, Laura Soldati<sup>3</sup>, Alida Attnà<sup>4</sup>, Giulia Cinelli<sup>5\*</sup>, Claudia Leggeri<sup>6</sup>, Giovanna Caparelli<sup>7</sup>, Luigi Barrea<sup>8</sup>, Francesco Scerbo<sup>9</sup>, Ernesto Esposito<sup>7</sup> and Antonino De Lorenzo<sup>1</sup>

Impacts of the COVID-19 Pandemic on Food Security and Diet-Related Lifestyle Behaviors: An Analytical Study of Google Trends-Based Query Volumes

by Nour Refaiah Maysari<sup>1,2†</sup>, Dong Khanh Ngoc Ho<sup>1,3†</sup>, David J. Lundy<sup>4,5†</sup>, Ansholy V. Skabry<sup>6,7†</sup>, Alexey A. Tinkov<sup>8,9,10,11</sup>, Chun Tang<sup>12</sup>, Wang-Chieh Wu<sup>13</sup>, Amelia Farrelia<sup>14</sup>, Ahran Zaki Mahdi Mohammed<sup>15</sup>, Ji Min Park<sup>16</sup>, Yi Jing Ngai<sup>17</sup>, Sabrina Akina<sup>18</sup>, Naita Maya Shofia<sup>19</sup> and Jung-Su Chang<sup>1,2,3,4,5,6,7,8,9,10,11</sup>

dispersed schedules. The outdoor physical activity and leisure pursuits like gardening, shopping, walking, etc., all came to a halt with physical and social distancing norms, encroaching people to more screen times than ever before. All of this in amalgamation has directly affected the sleep cycles and their quality because of stress caused by changed routines, finances, and work-related situations.

Nationwide - long and short-form surveys were conducted by AIIMS to study the increase in lifestyle diseases during the pandemic. These surveys and studies have been published on international platforms.

As per one of the studies, one-third of the surveys had

to obesity and allied metabolic disorders such as diabetes, hypertension, and cardiovascular disorder wherein individuals with obesity have the highest odds of getting COVID-19 infection as per the study conducted by AIIMS institution through telephonic interview. Here the result was found that the Mean BMI and prevalence of obesity were higher in COVID-19-positive individuals.

### Bi-Directional Relation: Obesity and the Chances of Catching Covid-19 Infection

The chart shows how COVID-19 influenced “stay at home” work routines, lessening physical activities and overhauling daily lifestyle - causing obesity, which

General trends in COVID-19 led changes in lifestyle related behavior		
Eating Behavior	Activity Behavior	Sleep Behavior
<ul style="list-style-type: none"> <li>↓ Accessibility to fresh produce</li> <li>↓ Accessibility to a variety of food items</li> <li>↓ Fruits and vegetable consumption</li> <li>↑ Fast and junk food consumption</li> <li>↑ Sugar sweetened beverage consumption</li> <li>↑ Meal regularity</li> </ul>	<ul style="list-style-type: none"> <li>↓ Outdoor physical activity: Gyms, walks, fitness classes</li> <li>↓ Leisure related physical activity: Gardening, walking the dog, grocery shopping</li> <li>↑ Household activities: Cleaning, dusting etc.</li> <li>↑ Screen time</li> </ul>	<ul style="list-style-type: none"> <li>↑ Stress due to changes in routine, finances and work related situations</li> <li>↑ Hours of sleep</li> <li>↓ Quality of Sleep</li> </ul>

gained weight as a result of affected eating, activity, and sleeping behaviors. In some instances where eating behaviors had marginally improved, physical activities, on the other hand, significantly declined. Changes in lifestyle-related behaviors have the potential to lead

in turn leads to chronic inflammation, respiratory problems, etc, putting us at greater risk of catching the infection.

The basic components of Behavioral Lifestyle Management are; the correction of dietary habits,

## Bidirectional Relationship: COVID-19 and Obesity



adequate physical activity, and sleep, as well as reduction of stress and anxiety - through Yogic practices like Pranayama, Dhyana, and Yogasanas.

Yoga acts as an adjunct therapy in the management of COVID-19 for different populations and their physical, social, and psychological nurturing at the time of the pandemic. Yoga is a promising practice with psychophysiological benefits. But more research needs to be done for devising standard protocols for the management of COVID-19 and its related symptoms across different populations and patient categories.

### Yoga and its Effects on the Healthy Development of Covid-19 Warriors and Patients

Pranayama and physical exercise aid individuals and will be better when performed after a long day of work in the evening. Pranayama before sleep indeed would

be better for good quality sleep and recovery of the body after a stressful day of work.

Post-Covid-19, sick people went through certain aftermath symptoms both physical - in terms of breathing problems, fatigue, etc., and psycho-social behaviors developed because of isolation. All such patients have been aided and advised to practice Yoga regularly to improve both the above-mentioned problems.

### Conclusion

The strengthening of prevailing information on the integrative medicine systems of Ayush is important in the long run. Modern medicines, along with alternatives, can prove to be the best way to overcome the effect of the pandemic. ■



The image has been taken from "Covid 19: Effect on Lifestyle Related Diseases" online webinar.



**Prof. (Dr.) Tanuja Manoj Nesari**  
Director, All India Institute of  
Ayurveda (AIIA)  
New Delhi

# Ayurveda and Yoga in the COVID-19 Management: Experience Sharing

Professor Dr. Tanuja Nesari is the Director and head Division of Translational Research & Biostatic at All India Institute of Ayurveda, GOI, New Delhi. She is also a Chair of the Health sector sub-skill council for Ayush, GOI. She has worked as CEO, National Medicinal Plant Board, Ministry of Ayush and has completed her M.D. and Ph.D. in Ayurvedic Pharmacology (Dravyaguna Vidnyan) from Gujarat Ayurved University, Jamnagar.

## Abstract

Ayurveda and Yoga are two sides of a single coin for attaining harmony between the mind, body and soul. Yoga and Ayurveda, since ancient times till the present have existed in sync, complementing each other as sister practices for holistic health and wellness. The therapeutic science of Ayurveda, when practiced alongside the spiritual and physical practice of Yoga, brings an overall consonance and balance to our body and mind, aptly leading us towards the path of self-realization.

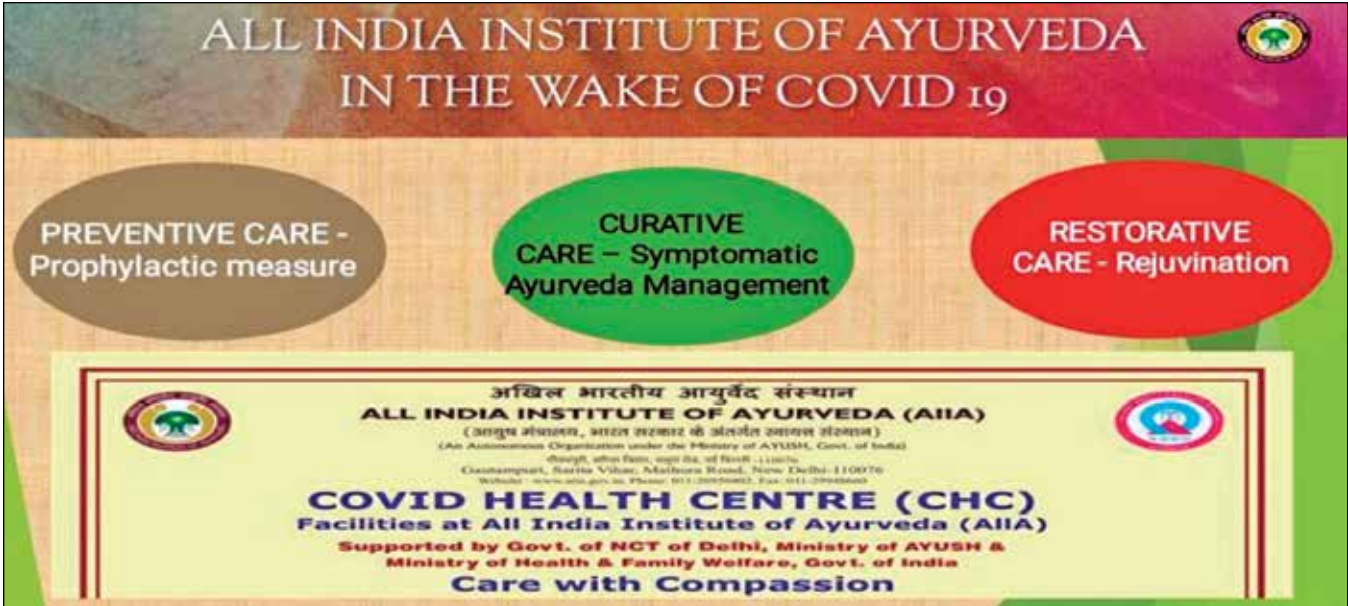
## Introductory Remarks

Director MDNIY reiterated that Ayurveda and Yoga are the flip sides of a single coin that collectively helps to attain harmony between mind, body and soul. Ayurveda is the physical face of Yoga. Yoga is the spiritual face of Ayurveda. Hence a combined module of “AyurYoga” should be followed for achieving holistic health and wellness amidst this pandemic and every day in general. Moreover, along with general measures like gargling, herbal medicines, use of spices and immunomodulatory measures, Ayurveda has advocated practicing Yoga for strengthening the respiratory system for coping up with mental stress the patient are facing in this unprecedented time.

**A** Prof. (Dr.) Tanuja Manoj Nesari briefed all about the relevance of Ayurveda and Yoga in COVID-19 Management.

Ayurveda is incomplete without Yoga. Ayurveda is not just a folklore medicine but a complete knowledge system and a monumental contribution of India to the world.

It is not merely a Jodi Butiscience rather with ashtanga the eight specialized clinical branches of Ayurveda when any disease infection condition arises, we treat it with cause, effect, and management as has been implemented and done in case of the COVID-19 infection breakout in India. Every aspect of Hethu, Linga and Aushadhi has been studied to tackle the pandemic before treating patients. Ayurveda is the science of life that aims to maintain the health and management of diseases, wherein she focuses on the widening scope of ayurvedic treatments from non-communicable diseases to communicable diseases alike. The opportunity to research and further this scope came about while battling the COVID-19 pandemic wherein the All-India institute of Ayurveda initiated the campaign of care with compassion.



The three-way approach of tackling the COVID-19 pandemic has been through;

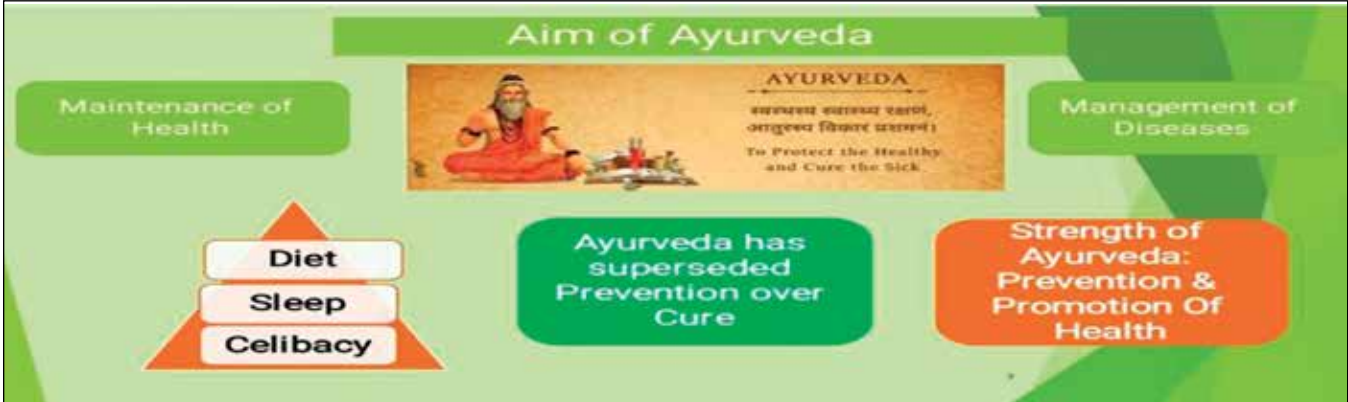
- Preventive Care - Prophylactic measure
- Curative Care - Symptomatic Ayurveda Management
- Restorative Care - Rejuvenation

In Ayurveda prevention is above cure and the Ayurvedic principles for a healthy life styleforms of the following: -

- Good Diet
- Sleep
- Practice of celibacy (Self-Control)

Knowledge and skills are never enough to counter severe threats like that of a pandemic, we also need to

develop the attitude to take on the agony and mental distress caused by these situations. This comes under the fourfold Health Care Management system of the Ministry of Ayush wherein through the initiatives like Ayushman Bharat almost 12,500 Health and Wellness centers have been set up to aid the patients. In addition to this, the focus on Physician (Uniform National Regulated Education System), Medicine that is useful in the treatment and post-care routines (Quality, Safety, Efficacy, Drug Standardization), Patient (Education and Awareness) as well as Nursing and Paramedical Staff - who have been adequately trained from treatment to cleanliness perspectives (Ayush Sector Skill Set). These are the key factors to determine an effective health care management system wherein everybody



*“Yogenachittasyapadenavacha , malamsharirasya cha vaidyakena, YopakarthamPravaramMuninam, PatanjaliPranjaliRanatosmi”*

at the AIIA have been actively engaged at upholding these systems and practicing Yoga on a regular basis.

### 3 Holistic Principles to Maintain Good Health during the COVID-19 Pandemic

- Preventing the Virus from entering into our cells
- Stopping its replication if it gets inside cells; and
- Reducing the damage that occurs to our tissues

These can be done by keeping in mind certain simplistic Ayurvedic practices such as Oil pulling, gargling with salt or lukewarm water, taking Kadha made of Tulsi (Basil), Dalchini (Cinnamon), Kali Mirch (Black Pepper), Shunthi (Dry Ginger), and Munakka (Raisin) once or twice a day. This can help in the replication of the virus inside our body systems.

### Rasayana Treatments: Enhance Health for Symptomatic -Asymptomatic COVID-19 Patients

#### Prophylactic Management Techniques

- General measures like drinking warm water throughout the day, use of spices like Haldi, Jeera, Dhaniya and Lehsun in cooking and the daily practice of Yogasana, Pranayama & Meditation at least 30 minutes as advised by the Ministry of Ayush.
- Immunity promoting measures like taking

Chyvanprash (10g) in the morning, drinking Kadha and golden milk- half teaspoon Haldi powder in 150 ml hot milk once or twice a day.

- Simple ayurvedic procedures like oil pulling and nasal application of sesame/coconut oil or ghee in both the nostrils (PratimarshaNasya) in morning & evening.

### MoA's Diet and Lifestyle Modification Guidelines for COVID-19 Management

Yoga practices for mental health wellbeing amidst COVID-19 pandemic. She enlists sukshmvayayama (warm-up) loosening exercises for all joints, Yogasana in sitting, supine postures and prone position, relaxing postures as savasana, makarasana, pranayama deep breathing, and meditation for 10 minutes to be practiced daily. The simple ayurYoga techniques are imbibed in our culture - sometimes referred to as dadimakenukhse, are all we need to maintain good health in such stressful times.

#### Conclusion

Ayurveda and Yoga are two sides of a single coin for attaining harmony between the mind, body and soul. The therapeutic science of Ayurveda, when practiced alongside the spiritual and physical practice of Yoga, brings an overall consonance and balance to our body and mind, aptly leading us towards the path of self-

Preventing the virus entering to our cells

Stopping its replication if it gets inside the cells.

Reducing the damage that occurs to our tissues.

By prof. Anthony Davenport from the university of Cambridge: any drug to treat COVID-19 will need to focus on the three key stages of infection

## Rasayana Treatment- Way to enhance



Guduchi



Ashwagandha



Haridra



Amalaki



Shatavari



Draksha

realization. The yogic meditation technique of different Pranayamas, and Kapalbhati as virtuous practices which in addition to Yogasanas have been impeccably

pertinent to maintain the holistic health of all COVID-19 patients and the health of common masses in general.



The image has been taken from "Ayurveda and Yoga in the COVID-19 Management : Experience Sharing" online webinar



**Dr. B.N. Gangadhar**  
Former Director,  
NIMHANS, Bengaluru

# Yoga to Overcome the Effect of Pandemic

Dr. B.N.Gangadhar is the Director and Professor of Psychiatry at NIMHANS. He has published over 240 scientific articles in peer-reviewed national and International journals. His research areas include ECT, RTMS & Yoga, Schizophrenia, and Community Psychiatry. He completed his MBBS in 1978 (Bangalore Medical College), MD Psychiatry in 1981 (NIMHANS), and DSc (Doctor of Science) from SVYASA University for research work on Yoga and Mental Health in 2012. He is presently on the expert committees of DST and on the national Ayush committee for integrative medicine.

## Abstract

The COVID-19 pandemic had a significant impact on the mental health of people. It has increased the level of depression in Society. Yoga shows promising results in addressing these issues. Practicing Yoga can bust the stress of this pandemic.

## Introductory Remarks

Director MDNIY stated that the COVID-19 pandemic shook the daily routines and normal lifestyle patterns of individuals. From diet to sleep schedules, every part of healthy living was altered due to lockdown and psycho-social changes induced by the pandemic. These alterations have plunged many into mental health problems and diseases like stress, depression, anxiety, etc. The nature of events and resilience in the individual determines the degree of impact that these psycho-social disorders inflict on our lives. Lifestyle practices, like Yoga, can enhance strength and either prevent depression or lower its severity in the event of significant stress upon the mind pertaining to unavoidable circumstances like a Pandemic.

**A**s a part of the Friday Weekly Webinar, an elaborative session was delivered by Dr. B.N. Gangadhar wherein he discussed how Yoga helps to overcome the effects of the pandemic on 18<sup>th</sup> December 2020.

## References of Yoga in Ancient Text

Yoga Vasishtha gives a definition of Yoga as “Manahprashamanah upayah Yoga ityabhidhiyate”, from Bhagavad-Gitareference Yoga is equanimity, “Samatvam Yoga uchyate” and from Patanjali Yoga Sutra reference Yoga is complete cessation of mental activities “Yogas Chitta Vritti Nirodha”.

To overcome the vrittis of the mind, Sage Patanjali gave the path of Ashtangamarg which includes Yama (Self-restraint), Niyama (Universal laws), Asana (Sacred posture), Pranayama (Regulation of breath), Pratyahara (Restraint of senses), Dharana (Concentration), Dhayana (Meditation), and Samadhi (State of being absorbed in the source of life).

Note: Most of the clinical work and research in Nimhans is related to asana, pranayama, and meditation.

## Positive Effect on Elderly Individuals

The intervention took place in an old age home; Research findings showed that Yoga proved better than usual care, relaxation, and aerobic exercises.





Yoga generates effects that are conducive to getting over a depression in a better way.

A randomized clinical trial was performed for the duration of 6 months. The results showed that Yoga helped in improving sleep quality, cognitive ability, and quality of life.

### Yoga in Depression, Therapeutic Effects (Meta-Analysis)

#### Role of GABA in Depression

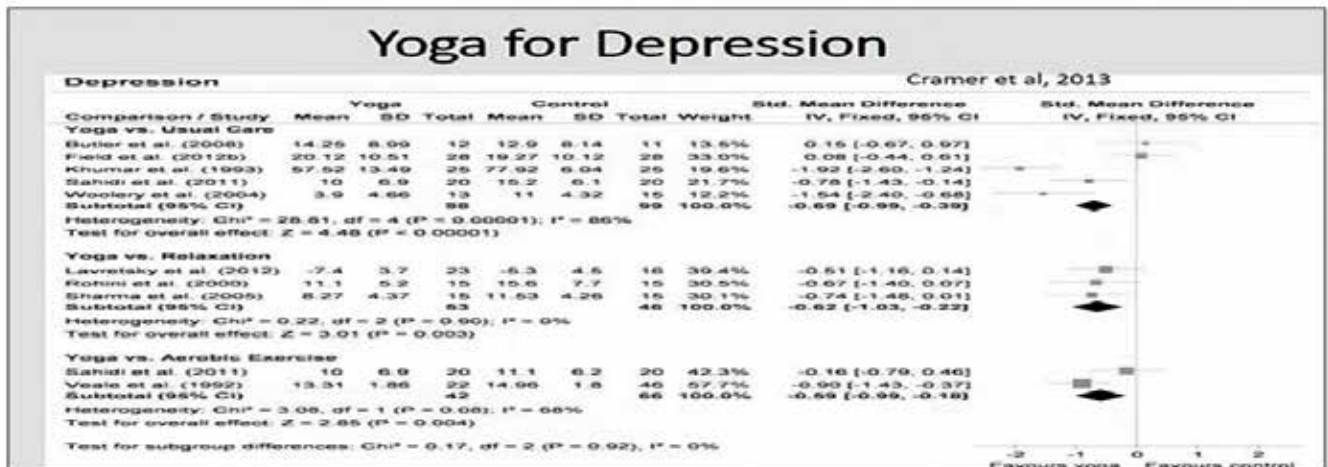
Yoga has beneficial effects on mood and anxiety. GABA activity is reduced in mood and anxiety disorders. The practice of Yoga postures is associated with increased brain GABA levels.

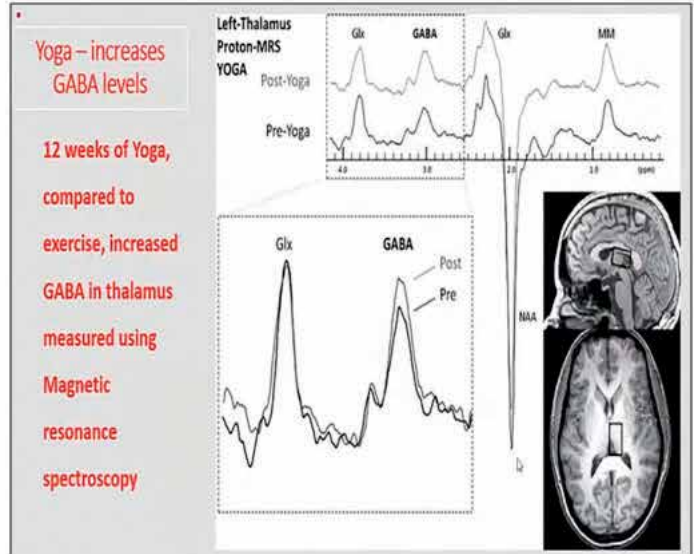
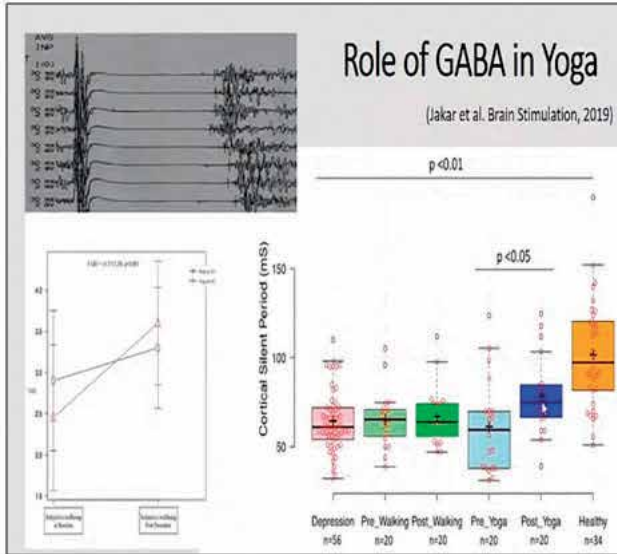
### Yoga on Cortisol

Stress and depression are related to an increased level of cortisol. Cortisol is linked to the brain chemical BDNF (brain-derived neurotrophic factor), BDNF gets lower when an individual is very stressed (depressed individuals). Yoga helps increase the BDNF level daily and long-term practice of Yoga protects the brain. Antioxidants are also enhanced by the practice of Yoga. Yoga also helps in repairing the brain by reducing the DMN (default mode network).

### Direct Effect of Yoga Practice “Om chanting” on the Brain

Some of the areas of the brain become either deactivated, hyperactivated or hypo activated. These can create a triggering emotion in an individual, in





depressed individuals these areas are hyperactivated. The practice of Yoga lowers the activity of these areas in the Limbic Nuclei.

“CHITA DAHATI NIRJIVAM CHINTA DAHATI JIVANAM”  
(Samayochitapadya Maalika) CHITA BURNS THE DEAD AND CHINTA BURNS THOSE WHO ARE ALIVE.

### Effect of Yoga Practice on Brain and Its Gray Matter

The gray matter reduces with age in people; this is

called the age-dependent loss of gray matter. However daily and long-term practice of Yoga protects the brain. Antioxidants are also enhanced by the practice of Yoga. Yoga also helps in repairing the brain by reducing the DMN (default mode network).

### Conclusion

Yoga is helpful in overcoming depression, especially in COVID -19 pandemic as it helps in general stress reduction. ■



The Image has been taken from “Yoga to Overcome the Effect of Pandemic” online webinar



**Dr. Jyotsna Agrawal**  
Associate Professor,  
Department of Clinical Psychology,  
NIMHANS, Bengaluru.

# Bhagavad Gita and Mental Health : A Transdiagnostic Perspective

## About the Speaker

Dr. Jyotsna Agrawal has completed her M.Phil and Ph.D. degrees from (NIMHANS), Bengaluru. She is a consultant for Adult Psychiatry, Geriatric Medicine, Positive Psychology, and Integral Medicine, along with being the faculty in charge of the VIPRA (Vedic Indian Psychology Research & Application) division, under which she runs two clinics, Sattva and Swasthya. She was awarded the prestigious Fogarty International Postdoctoral Fellowship at Washington University, School of Medicine, St. Louis, USA, and another postdoctoral fellowship at S-VYASA Yoga University, Bangalore. Prior to joining NIMHANS, she served as an Assistant professor at the Indian Institute of Technology, Patna. Her research interests include positive psychology, preventive and promotive approaches toward public mental health, psychotherapy, Indian psychology, and Yoga and consciousness studies.

## Abstract

This webinar will give an overview of the current mental health picture in India, especially with respect to the most common mental health disorders. The pictures of mental health in India are some of the common psychological factors behind many of these disorders, which are also known as transdiagnostic factors. The insights from Bhagavad Gita concerning these factors with a deliberation on how Bhagavad Gita can contribute to positive mental health will also be discussed in the webinar.

## Introductory Remarks

Director MDNIY deliberated upon the most emphasized texts in the Yoga field i.e. Yog Sutra of Patanjali and the Bhagavad Gita. Many misinterpret Yoga as only physical practice, however, it is more mind-centric. Even the psychological aspects are predominant in the teachings of the Bhagavad Gita and Patanjali Yog Sutra.

Health is a determinant of daily well-being encompassing the emotional, psychological, and social upkeep of individuals. It dramatically affects day-to-day productivity depending on how individual think, feel, and act when dealing with common lifestyle issues and problems. The knowledge of ensuring a healthy

mind can be sourced from the treasure of ancient texts such as the Bhagavad Gita which is a scripture of principles that can change one's life in positive ways.

**D**r. Jyotsna Agrawal deliberated upon the current mental health scenario in India, especially with respect to the most common mental health disorders on 25<sup>th</sup> December 2020 as a part of the Friday Weekly Webinar.

## Mental Health

Mental Disorders are a wide range of multiple conditions with symptoms like reduced ability to concentrate, affects of deep sadness, inability to manage daily stress, sleeping disorders, strong feelings of fear, worry, guilt, etc. Such symptoms can either be common or severe

## Current picture in India

In India, common mental disorders (depression, anxiety & substance use disorders) - 10.0% of the population

1 in 20 people in India suffer from depression

1 in 5 having addiction (SUD)

High suicidal risk (1%) is another increasing concern

in nature or focus majorly on common mental disorders like depression, stress, and anxiety which are often referred to as “Common Cold of Mental Disorders.”

There is a large “Treatment Gap” prevalent in India, wherein people with mental disorders do not receive adequate treatment on time. This situation is further complicated by the lack of awareness among people and the marginal population who cannot afford expensive treatments in addition to the gap between urban and rural areas. Therefore, stress is on the need for more non-specialist professionals in mental health care delivery aided by the prevention and health promotion through Yoga.

The Indian texts such as Bhagavad Gita, Yoga Sutra, Yoga Vasistha, etc. are full of mental health insights that may be built into large-scale community programs and can help in overcoming issues of culture-match, and low resources leading to more acceptance.

This idea is further supported by a shift happening in the field of mental health wherein new findings in the field of genetics and brain sciences suggest that there is no single cause for mental illness, rather it is multifactorial. There has been an increasing consensus on the genetic, familial, and social-psychological (cognitive-affective, interpersonal-behavioural) processes behind many mental disorders.

Mental disorders have both; Multifinality (same set of causes to different outcomes) and Equifinality (diverse

causes producing the same disorder); a recent study from New Zealand which followed people from age 11 to 45 indicated that very often a person having one disorder, later has another one which is acknowledged as an “Ebb and Flow” of mental disorders within the same person.

Such common causes are called “Transdiagnostic” because they are beyond a single diagnosis for example examining a person with anxiety and depression together. The Transdiagnostic approach is known to be more efficient when there are multiple disorders to access and are easier to scale up for understanding.

### Relation of Common Trans Diagnostic Factors and Insights from Bhagavad Gita

Approach motivation and Avoidance motivation are the two different kinds of motivations that move people towards or away from doing activities and experiencing things.

The Approach Motivation and Avoidance motivation are tendencies, in dysfunctional forms associated with mental health disorders. In the Yogic language, these tendencies are known as “Raag” and “Dwesh” (common afflictions).

In chapter 1 of the Bhagavad Gita where Arjuna is trying to avoid fighting due to an aversive outcome while Krishna asks him to do his work without thinking about the pleasantness or unpleasantness of the outcome. In life, people run on motivation either driven

**Bhagavad Gita further gives multiple techniques ...** **which would help manage emotions**

Meditation & Contemplation

Pranayama

Surrender & offering (Yajna)

Shifting one's attitude



Developing a larger perspective about self, others, universe and Divine.

Being a witness to one's body and mind commonly known as mindfulness (*Sakshi, Kshetrajna*)

by experiencing whatever is pleasant or the need to avoid something they consider unpleasant.

Bhagavad Gita emphasizes various kinds of shifts in oneself while selecting a goal and doing one's work such as Swadharma, Nishkama Karma, and Yajna. It emphasizes the development of emotional balance

Furthermore, Bhagavad Gita talks about multiple techniques such as meditation and contemplation, the Yogic practice of Pranayama (breathing exercises) – Surrender and Offering (Yajna), mindfulness, and developing a larger perspective of self-others-universe and the divine.



(Samatvam) that encourages one to develop a capacity to tolerate unpleasant bodily sensations (cold heat) and emotions (sadness- happiness).

Another factor highly recommended by Dr. Jyotsana is non-attachment and psychological flexibility which

refers to the capacity to endure healthy separation and an ability to let go of things.

Moreover, seeing self as the consciousness (self as context) and distancing from these thoughts-feelings (cognitive diffusion) is commonly used as a therapy mechanism across diagnoses.

The feeling of “Awe” is defined as an overwhelming feeling of reverence, admiration, fear, etc. – produced by something grand, sublime, and extremely powerful. The feeling of awe in Arjuna is also talked about in Bhagavad Gita around chapter 9-11, which is simultaneously triggered for a reader also.

This emotion is linked with multiple benefits from making one feel connected to other people and humanity, to describing materialism, making people more generous/cooperative, enhancing the sense of time ultimately improving health, mood, critical thinking abilities, etc.

There are multiple chapters in Bhagavad Gita that are devoted to positive qualities worth cultivating – from persistence to friendliness and compassion, etc. (Daiviya Sampada, Satvik Guna).

These qualities when studied extensively in positive psychology were found to be associated with the basic ingredients of positive mental health (namely – positive emotions, engagement, meaning, healthy relationships, and accomplishments). Medication can bring them to a position where they can start with Psychotherapy. But it is very important to remember that each person is different and they may need individualized treatments.

### Conclusion

Bhagavad Gita is a treasure house of innumerable psychological insights that can enhance health through many pathways and it is time to develop-build mental health intervention models based on these insights and studies. ■



*The image has been taken from “Bhagavad Gita and Mental Health: A Transdiagnostic Perspective” online webinar*



**Dr. Som Nath Singh**

Head of Department of Nutrition, Biochemistry, Exercise Physiology & Yoga in Defence Institute of Physiology and Allied Sciences, Delhi

# Nutritional Planning for Balanced Diets

Area of work of Dr. Som Nath Singh is evaluation of nutritional requirements of Armed Forces with reference to different environments and physical training. His basic work includes appetite regulation, oxidative stress at high altitude, communicable diseases and metabolism. He has conducted several studies under actual conditions of deployment and training for the review of ration scales of Armed forces. He has 105 research papers in Indian and International Journals, 19 book chapters and 17 technical reports to his credit. He is life member of 8 National Societies and was elected member of Sectional committee Medical Sciences (including Physiology) of Indian Science Congress in 1999 & 2006. He is recipient of various prestigious awards such as-DRDO Laboratory Scientist of the year Award, Surg Rear Admiral MS Malhotra Prize, National Science Day Oration, ShakuntlaDasgupta memorial oration award of Physiological Society of India and Technology Group Award.

## Abstract

Society is facing a dual burden of malnutrition and over-nutrition-related disorders with hidden hunger. An adequate and well-balanced diet in terms of calories, macro, and micronutrients is a key factor for a healthy life. Increased stress, pollution, adaptive changes in the genetic makeup of Indians due to feast and famine conditions in the past and faulty lifestyle are responsible for the rise in obesity-related disorders. Different types of food restrictions or fast are practiced all over the world for religious and health benefits like reduction in body weight and biochemical markers of metabolic syndrome. Highly restrictive diet plans should be avoided as they may lead to micronutrient deficiencies.

## Introductory Remarks

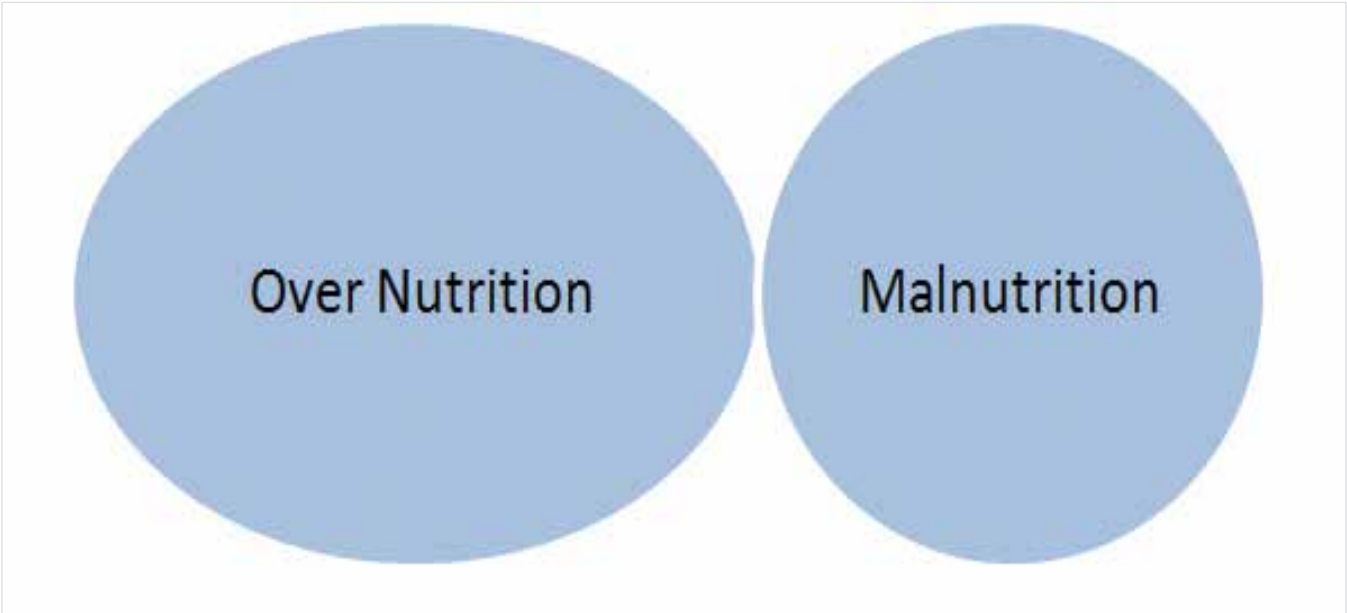
Director MDNIY detailed about the nutrition and its related disorders. An adequate and well-balanced diet is very important for a healthy lifestyle. Increase in stress, pollution, and other factors leads to various health hazards such as obesity, diabetes etc. Various rituals which are prevalent in India contribute to maintaining good health. Besides this, focusing on nutrition is also very important to reach a state of complete health.

**D**r. Som Nath Singh highlighted the importance of Nutritional Planning for a Balanced Diet on 1<sup>st</sup> January 2021.

Health is the state of complete physical mental and social well being and not merely the absence of disease or infirmity. There are different views on Nutrition. Hence, definition also varies with it such as: -

- Pranah Prana Bhutanam By Philosophy
- Let Food Be your Medicine By Hippocrates (Father of Modern Medicine).
- An Army Marches on its Stomach By Napoleon

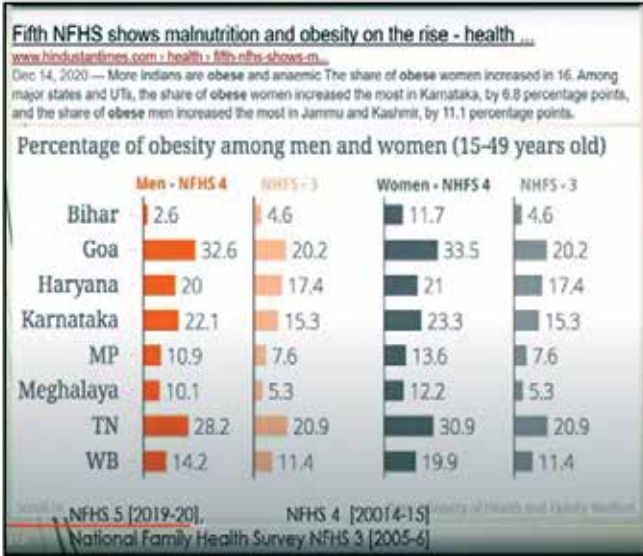
Food is very important for the well being. In earlier times, food was eaten raw. However, with development it become more processed, with time and developed



physical activity of people got reduced and the added environmental pollution, psychological stress were the major factors that somehow degraded the health. That's why Yoga and nutrition play a major role in making the society healthy. As per the nutritional scenario in country, global hunger index is under 'alarming' category. Now there is a shift from infectious diseases to more lifestyle diseases.

**Nutrition Problem in Modern society**

Malnutrition refers to not receiving proper nutrition and it does not distinguish between the consequences of too many nutrients or the lack of nutrients, both of which impair overall health. Over-nutrition refers to a chronic condition where the intake of food is in excess of dietary energy requirements, resulting in overweight and/or obesity.



**Obesity a risk factor in COVID-19**

Obesity - a risk factor for increased COVID-19 prevalence, severity and lethality (Review)

HEMETERIOS PETRAMAKI<sup>1</sup>, KENDRA MARGINA<sup>2</sup>, SIVASANTOS TASHIRIADIS<sup>3</sup>, FIVKA TROJAN<sup>4</sup>, MIKELANA STAN<sup>5</sup>, DRAGANA NIKETONIC<sup>6</sup>, DEMETERIOS KORBESIA<sup>7</sup>, DEMETERIOS SPONDONIS<sup>8</sup> AND ANASTASIOS TAVLAKIS<sup>9</sup>

WILEY

**Obesity: A critical risk factor in the COVID-19 pandemic**

Teri Winkler<sup>1,2</sup>, Sabaan Adnan<sup>3</sup>, Jui-Hsiung Hsu<sup>4</sup>, Zulfahid Idris<sup>5</sup>, Peter Turkington<sup>6</sup>, Salwan Khatib<sup>7</sup>, Carl W. Le Boer<sup>8</sup>, Wanderson Soares<sup>9</sup>, Ahmed A. Younis<sup>10</sup>

**Abstract**

Obesity is an emerging global health issue. It is well established that obesity is a risk factor for increased COVID-19 prevalence, severity and lethality. This review discusses the mechanisms underlying the increased risk of COVID-19 in obese individuals, including the role of adipose tissue, insulin resistance, and chronic inflammation. It also provides a comprehensive overview of the current evidence on the impact of obesity on COVID-19 outcomes, including hospitalization, intensive care unit admission, and mortality. Finally, it discusses potential strategies for the prevention and management of obesity-related complications in the context of the COVID-19 pandemic.



### Food choice is complex process & Influenced by

**Environmental factors**

- Physical environment
- Economic environment
- Lifestyle
- Cultural belief & traditions
- Religious belief & traditions

**Health Status**

- Physical Restriction due to disease
- Declining taste sensitivity with age
- Age & gender

**Sensory**

- Flavor (taste & smell)
- Texture
- Appearance

**Cognitive**

- Learned food habits
- Social factors
- Emotional needs
- Nutrition & health belief
- Advertising

**Genetics**

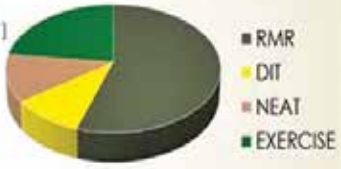
- Taste Sensitivity
- Preference for sweet
- Avoidance of bitter
- Possible 'fat tooth'

### Total Energy Expenditure (TEE) is main determinant of nutritional requirement

Energy intake = Energy Expenditure [for individual]

**TEE has four components**

- Resting Metabolic Rate [RMR] or Basal Metabolic Rate [BMR]
- Diet induced thermogenesis [DIT]
- Non Exercise Activity thermogenesis [NEAT]
- Exercise [E]



**Energy in Food (kcal/g)**

Food Energy	Carbohydrate	Fat	Protein	Alcohol
Gross Energy	4.10	9.45	5.65	7.10
Digestible energy	4.0	9.0	5.2	7.1
Metabolizable energy	4.0	9.0	4.0	7.0

## Obesity

In a survey conducted by NHFS in 2020, it was found that obesity is on increase in India. People who are obese are more prone to respiratory diseases and Covid -19. During this Pandemic, it was found that there was more admission rate of obese people in hospitals and the Mortality rate due to COVID-19 was also high. Hence it is the need of the hour to work on obesity and reduce it.

## Nutrition

Nutrition plays a vital role in reducing obesity. Adequate dietary intake can be measured by a person's weight. People with a BMI of more than 25 are considered obese. The Basal Metabolic Rate (BMR), a precisely defined measure of the energy expenditure necessary to support life, is determined under controlled and standardized conditions shortly after awakening in the morning, at least 12 hours after the last meal, and

### Balanced Diet for Adult Indians

Food groups	g/portion	Type of work					
		Sedentary		Moderate		Heavy	
		Man	Women	Man	Women	Man	Women
		No. of portions					
Cereals & millets	30	12.5	9	15	11	20	16
Pulses	30	2.5	2	3	2.5	4	3
Milk & milk products	100 ml	3	3	3	3	3	3
Roots & tubers	100	2	2	2	2	2	2
Green leafy vegetables	100	1	1	1	1	1	1
Other vegetables	100	2	2	2	2	2	2
Fruits	100	1	1	1	1	1	1
Sugar	5	4	4	6	6	11	9
Fat	5	5	4	6	5	8	6

### Balanced Diets for Infants and Adolescents

Food groups	g/portion	Years									
		6-12 months		1-3	4-6	7-9	10-12		13-15		16-18
		Infants	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
Cereals & millets	30	0.5	2	4	6	8	10	11	14	11	15
Pulses	30	0.25	1	1.0	2	2	2	2	2.5	2.5	3
Milk (ml) & milk products	100	4*	5	5	5	5	5	5	5	5	5
Roots & tubers	100	0.5	0.5	1	1	1	1	1	1.5	2	2
Green leafy vegetables	100	0.25	0.5	0.5	1	1	1	1	1	1	1
Other vegetables	100	0.25	0.5	1	1	2	2	2	2	2	2
Fruits	100	1	1	1	1	1	1	1	1	1	1
Sugar	5	2	3	4	4	6	6	5	4	5	6
Fat oil (visible)	5	4	5	5	6	7	7	8	9	7	10

\* Quantity indicates top milk. For breastfed infants, 200 ml top milk is required. One portion of pulse may be exchanged with one portion (50 g) of egg/meat/chicken/fish.

with a comfortable room temperature. Because of practical considerations, the BMR is rarely measured; the Resting Energy Expenditure (REE) is determined under less stringent conditions, with the individual resting comfortably about 2 to 4 hours after a meal. In practice, the BMR and REE differ by no more than 10 percent the REE is usually slightly higher and the terms are used interchangeably.

### BMI Criteria Drawback

The physiological body composition of both male and females body is different. Females have more body fat than males, as a gesuet sometimes the criteria of BMI is not adequate. Hence, the next criteria we can use

likely suggest making an action plan to reduce the person's BMI.

### Nutritional Requirements

Nutritional Requirements of the Body depends on several factors: -

1. Energy Expenditure
2. Body Composition and Nutrient Reserve.
3. Growth Need
4. Climatic condition
5. Food availability

Food Groups	Foods to be consumed/ day (Weight of raw foods in g)	Percent of total calories/ day from each food group	Total Calories/ day (Kcal) from each food group	Total protein/ day (g) from each food group
Cereals (Incl. Nutricereals)	270	45	900	20
Pulses*	90	17	340	21
Milk/ Curd	300	10	200	10
Vegetables*	350	5	100	4
Fruits#	150	3	67	1
Nuts & seeds	20	8	150	4
Fats & Oils*	27	12	243	-

\* Eggs/fish/meat can substitute pulses  
 + Prescribed amount of vegetables may be consumed either in cooked form/ salad  
 # Prefer fresh fruits (avoid juices)  
 \* Use different varieties of cooking oils (don't use just one type of oil)

- 'My Plate for the day' represents proportions of different food groups for meeting ~2000 Kcal  
 - Individuals trying to reduce weight may cut-down on cereal intake  
 - The meal plan is not for any specific medical condition

is Waist Circumference Measurement as abdominal fat increase the risk of Health more than the fat on other parts of the body.

### Metabolic Healthy Obese

People with obesity develop additional health problems known collectively as metabolic syndrome. However, not everyone with obesity has these complications. Some people call this Metabolically Healthy Obesity. 20% people in India are under healthy obese, means that they do not have any other problem apart from obesity. For this reason, anyone with obesity should speak to their dietician for advice. The doctor would

6. Dietary habits and preferences.

### Planning a Nutritional diet

Planning a nutrition diet is a complex process. ICMR provides the RDA (Recommended Dietary Allowance) of nutrients for country population and its recommendation based on the current knowledge of nutritional requirement of different age,sex group, countries, food and dietary habits. RDA are used for formulating dietary guidelines for individuals and groups and for planning national food and agricultural strategies.

## Balanced diet For Adults in India

### My Plate concept by ICMR

The plate, designed by the ICMR-National Institute of Nutrition, recommends sourcing of macronutrients and micronutrients from minimum of 8 food groups per day to achieve a balanced diet that would fulfil the required calorie or energy needs of Indians.

### Nutritional Oxidative Stress

Nutritional Oxidative Stress describes an imbalance between the prooxidant load and the antioxidant defined as a consequence of excess oxidative load or of inadequate supply of the organism with nutrients; the term dietary oxidative stress is often used synonymously.

## Postprandial Oxidative Stress

Postprandial oxidative stress is characterized by an increased susceptibility of the organism toward oxidative damage after consumption of a meal rich in lipids and/or carbohydrates. Thus, macronutrients have an effect on the redox balance in the organism.

### Conclusion

Nutrition is a critical part of health and development. Better nutrition is related to stronger immune systems, lower risk of non-communicable diseases. Malnutrition, in every form, presents significant threats to human health. Hence, one should maintain adequate nutrition for health. ■



*The image has been taken from "Nutritional Planning for Balanced Diets" online webinar*



**Dr. Suryakant D. Patil**

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# Yogic Shodhan Kriya

Dr. Suryakant D. Patil is Honorary Director of Institute of Yoga and Naturopathy, H.V.P. Mandal, Amravati. He is also a Coordinator of Special Training Centre for Child Labour under the National Child Labour Project, H.V.P. Mandal, Amravati. He has contributed to different camps on Yoga, Naturopathy and Sport at different places in India since 1990 as an invited expert and attended various National and International Seminars and Workshops on Yoga and Naturopathy.

## Abstract

To overcome the adverse effects of pollutants, food adulteration etc. we need to adopt certain ways to maintain Health & Hygiene. Yogic shodhan kriyas are very important part of Yoga which can lead us to better health and hygiene.

## Introductory Remarks

Director MDNIY elaborated the purification practices in the ancient texts like hatha Yoga pradiipika, gherandasamhita as the ghatashuddhi practices. The term ghata means the physical body made of panchamahabhutas. Shatkriya are important in the current scenario of the pandemic, as it deals with personal hygiene. Shatkriyas are the cleansing practices that help in cleaning the internal organs and systems of the body. This helps in the alignment of prana which in turn helps to connect the body and mind.

**D**r. Suryakant D. Patil gave an elaborated and informative session wherein he discussed the Yogic Shodhan Kriya on 8<sup>th</sup> January, 2021.

Health is our birth-right, ageing is a natural process but, untimely function or deterioration is not natural. There are various characteristics for health that are mentioned in our ancient texts. However, such characteristics are missing in the present generation. To avoid such functional deterioration, one must practice Yogic shodhankriya.

People ask how one can define the human body, one of the definitions which can be given for human body is, and it is the product of waste material or factory of waste material. Whether a person eats or not but in every 24-hours body produces impurity or the mala. If the impurity is less in the body, then it will help in

increasing the functioning of each cell. Hence yogic shodhan kriyas are important.

## Reference of the Ancient Text on Yogic Shodhan Kriya: The Gheranda Samhita

Gheranda Samhita mentioned the term GhataShuddhi which means, not only purification but also fortification of psychophysical unit. There are 7 steps of the Ghata Shuddhi i.e., shodhana, dridhata, sthairyaa, dhairva, laghava, prayasksha, nirlipta.

## Shatkarma

Shatkarma is made from 2 words, shat means six and karma means action. Hence, shatkarmais six forms of action that will help in the purification of the body.

The shatkarma can be classified on the following basis:

1. **Mode of cleansing:** it includes air, water, friction and manipulation movements.
2. **Region of cleansing:** it includes naso -pharyngo -audio -cranial -region, gastro -oesophageal -region and ano -recto -intestinal -region.

## Benefits of Shatkarma

- It helps in the detoxification of the body.
- Important in the treatment of many functional disorders.
- Kriyas have a direct influence on the autonomic nervous system, attitude and value system of the person.

- It also influences the endocrine and metabolic pathways.
- Increases vitality in the person.

Vitality is the inherent power in every individual from the time of genetic birth that preserves & promotes health and prevents & cure disease. It cannot be quantified. It cannot add on however, can be lost due to abuse of health principles which can be fully or partially be regained by yogic practice and rejuvenating procedures.

### Shatkarmas

The six karma or the purification practice are as follow: -

- Dhauti (stomach wash)
- Basti (colon flushing)
- Neti (nasal douche and cleansing)
- Nauli (manipulation abdominal muscles)
- Trataka (steady gaze)
- Kapalbhathi (forceful rapid breathing)

### Dhauti

Dhauti are of four types, antardhauti, dantadhauti, hriddhauti and mulashodhana.

- **Antardhauti:** It includes vatasara, varisara, vahnisara and bahishkrita.
- **Dantadhauti:** It includes dantamula, juhvamula, karnarandhra and kapalrandhra.
- **Hriddhauti:** It includes danda dhauti, vamana dhauti and vastra dhauti.
- **Mulashodhana:** It includes cakrikarma and gabeshakriya

### Basti

Basti is of two types: -

- **Jala basti:** In Utkatasana this water is sucked into the anus for the purpose of cleansing the colon
- **Sthalabasti:** In this, sit in pashimottanasana and perform ashwini mudra 25 times sucking air into the bowels; retain it for some time and then expel it. By practicing basti the appetite increases, the body glows, excess doshas are destroyed.



## Neti

Neti are of two types: -

- **Jal neti:** It is performed with a neti pot filled with luke warm water with a pinch of added salt in it.
- **Sutra neti:** It is performed with a sutra. Where the sutra is inserted in one nostril and taken out of the mouth. Sutra neti stimulates the nerves and related brain functions of the eyes, tear ducts and olfactory zone; it increases mucus briefly, flushing out the secretory glands and removing stagnation of the blood, increasing resistance to invasion by viruses.

## Nauli

Nauli is of 4 types: -

- **Vam nauli:** contracting the abdominal muscle to the left side.
- **Dakshina nauli:** contracting the muscles to the right side.
- **Madhyama nauli:** contracting the abdominal muscles to the centre.
- **Nauli chalna:** contracting and moving the abdominal muscles from left to right side and vice versa.

## Trataka

It means continuous and steady gazing. Trataka is of two types: -

- **Bahyatratika:** In this, practitioner is supposed to focus on flame of diya or candle.
- **Antar trataka:** In this practice, practitioner is supposed to retain the image in between the eyebrow centre for as long as possible.

## Kapalbhati

Kapalbhati is made from two words, kapal means the forehead or skull and bhati means shining. Hence, kapalbhati means a practice that brings the shining to the forehead.

Kapalbhati is of three types: -

- **Vatakrama:** The term vata means the air. The principle used in this practice is of active exhalation and passive inhalation. Practitioner should focus on exhalation and inhalation will happen automatically.
- **Vyutkrama:** In this, practitioner should intake the water from nose and then expel it from the mouth.
- **Shitkrama:** In this, the practitioner should intake the water from mouth and then expel it from the nose.

## Conclusion

Shatkarma is the yogic way to clean the body from inside and get rid of the impurities present in the internal organs. He who longs to have good health must put forth some effort to achieve it. One can achieve anything with a will, plan and execution. ■



The image has been taken from "Yogic Shodhan Kriya" online webinar



**Dr. Kusal K. Das** (b.1962)  
Distinguished Chair Professor  
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BLDE (Deemed to be University),  
Vijayapur, Karnataka

# Unique Indigenous Anti-Diabetic Plants of Karnataka

Prof. Das is holding the position of Dean of Environmental Health under UNESCO Chair-Life Sciences (Biophysics, Biotechnology & Environmental Health). He did his PhD in Physiology from University of Calcutta. His research area is metal induced cell signalling in vascular pathophysiology on low oxygen microenvironment. Prof. Das is a recipient of more than a dozen of national and international orations and awards which include "G.P. Chatterjee Memorial Award 2019" by Ministry of Science & Technology, Government of India, 'Dr. Raja Ramanna State Scientist Award 2015' by Dept. of Sc. & Tech, Government of Karnataka; 'Science, Honour & Truth Medal' by Academy of Medicine, Bolivia (2016), 'MCRC Distinguished Lecture 2015' by Leeds Medical School, University of Leeds.

## Abstract

In India, from Ancient times many indigenous plants are used to cure diseases. Kenaf (*Hibiscus cannabinus* Linn, Pundi), Chick pea (*Cicerarietinum*Linn,Chana) and Prickly lettuce (*Lactucaserriola* Linn, Hattaraki) leaves are a few of indigenous plants which are routinely consumed by the people of Karnataka in the diet. In ancient literature the medicinal efficacies of these plants were mentioned but any anti diabetic efficacies of these plants are not being mentioned. Research findings indicate an adaptive pathway for glucose homeostasis and cardio protective actions in diabetic rats supplemented with *Lactucaserriola*.

## Introductory Remark

Director MDNIY informed that India is the land of many indigenous plants which are used for medicinal purposes. There are many indigenous plants which are routinely consumed by the people of Karnataka in the night especially north Karnataka. The medical efficacy of these plants is available in our ancient literature which is very helpful in various health disorders.

An elaborative lecture was delivered by Dr. Kusal K. Das wherein he gave a brief on the Unique Indigenous Anti-Diabetic Plants of Karnataka on 15<sup>th</sup> January 2021.

## Research

The research shows about the blood sugar reducing properties of these plants. An inspiration was made in which two groups were made a research was conducted

on two groups i.e., controlled and experimental group of animals. In experimental group, the rats were injected with alloxan to make them diabetic and their blood sugar was checked daily. Once they were able to get an adequately higher level of sugar that is more than 180 MM/DL, the treatment was done with these 3 plants that are *hibiscus cannabinus*leaves (Pundi), *Cicerarietinum* leaves (chana), *Lactucaserriola* (Hattarakipallye) and also kept one pharmaceutical drug that is "glipizide" that is a hypoglycemic drug.

In Vitro study (done outside) was done before the experiment on animals in which aqueous solutions were made of these 3 plants separately and added glucose to it in adequate quantity. Two PH were selected that is 7.0 and 9.0 as whatever is eaten will comes across two ph.One is in the stomach that is acidic and other is in the intestine that is alkaline for further digestion and absorption.



## Experimental Groups

Table :

GROUP	SUPPL	DOSAGE
Group 1	Control	Distilled Water
Group 2	Diabetic	Alloxan monohydrate (15 mg/100g b.wt. i.p.
Group 3	Diabetic + <i>Hibiscus cannabinus</i> Linn	12.5mg/100g. bwt. orally
Group 4	Diabetic + <i>Cicer arietinum</i> Linn	12.5mg/100g. bwt. orally
Group 5	Diabetic + <i>Lactuca serriola</i> Linn	12.5mg/100g. bwt. orally
Group 6	Diabetic + Glipizide	2.5mg/kg

20.5% glucose got actually reduced in case of hibiscus cannabinus leaves (Pundi) in pH 7.0 and in pH 9.0 it got reduced to 30.5% and in case of Lactucaserriola (Hattarakipallye) there was a significant decrease in blood sugar that is 68% in pH 7.0 in In-Vitro study done outside and sugar reduced by 98% in pH 9.0 or at the level of intestine

### Glucose Homeostasis

Oral Glucose tolerance test was done on all these groups. In which Glucose is infeed to all the groups and blood sugar was tested before giving glucose and after two hours of feeding. During the experiment, it was found that level of blood sugar was low in the groups where these 3 plants were also fed along with the glucose.



## In Vitro hypoglycemic effect of plant extracts

Table

SL.NO	Solution Sample	pH 7.0	pH 9.0
SL.1	Glucose (20mg/dL) + <i>Hibiscus cannabinus</i> Linn (0.5 mL)	20.5%	30.5%
SL.2	Glucose (20mg/dL) + <i>Cicer arietinum</i> Linn (0.5 mL)	35.5%	50.0%
SL.3	Glucose (20mg/dL) + <i>Lactuca serriola</i> Linn (0.5 mL)	68.0%	98.0%





## In Vivo: Oral Glucose Tolerance Test

Table 3. Effect of acute supplementation with *Hibiscus cannabinus* Linn, *Cicer arietinum* Linn and *Lactuca scariola* Linn leaves extract (12.5 mg/100 g body weight) on blood glucose level (Oral Glucose Tolerance) in diabetic rats.

Treatment Group	FBS	0.0h	0.5	1.0h	1.5h	2.0h
Control(G-1)	87.5 ± 10.34 <sup>a1</sup>	87.00 ± 8.45 <sup>a1</sup>	110.00 ± 8.45 <sup>b1</sup>	125.5 ± 10.45 <sup>c1</sup>	108.5 ± 7.45 <sup>b1</sup>	88.5 ± 9.45 <sup>a1</sup>
Diabetic(G-2)	235.50 ± 20.5 <sup>a2</sup>	244.50 ± 15.5 <sup>a2</sup>	340.50 ± 35.5 <sup>b2</sup>	400.50 ± 40.5 <sup>c2</sup>	450.50 ± 45.5 <sup>d2</sup>	430.50 ± 38.5 <sup>d2</sup>
Diabetic + <i>Hibiscus cannabinus</i> Linn (G-3)	245.50 ± 30.5 <sup>a2</sup>	250.50 ± 24.5 <sup>a2</sup>	325.50 ± 30.5 <sup>b3</sup>	385.50 ± 50.5 <sup>c3</sup>	400.50 ± 40.5 <sup>d3</sup>	380.50 ± 30.5 <sup>d3</sup>
Diabetic + <i>Cicer arietinum</i> Linn (G-4)	240.50 ± 25.5 <sup>a2</sup>	248.50 ± 25.5 <sup>a2</sup>	315.50 ± 25.5 <sup>b3</sup>	380.50 ± 20.5 <sup>c3</sup>	400.50 ± 35.5 <sup>d3</sup>	345.50 ± 30.5 <sup>d4</sup>
Diabetic + <i>Lactuca scariola</i> Linn (G-5)	245.50 ± 30.5 <sup>a2</sup>	247.50 ± 35.5 <sup>a2</sup>	290.50 ± 30.5 <sup>b4</sup>	300.50 ± 20.5 <sup>c4</sup>	285.50 ± 20.5 <sup>b4</sup>	283.50 ± 24.5 <sup>b5</sup>
Diabetic + glipizide(G-6)	234.50 ± 20.5 <sup>a2</sup>	240.50 ± 15.8 <sup>a2</sup>	275.50 ± 30.5 <sup>b5</sup>	280.50 ± 20.00 <sup>b5</sup>	220.50 ± 30.00 <sup>c5</sup>	185.67 ± 18.00 <sup>d6</sup>

Das KK et al 2017. CHAMC. Bentham

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Oral Glucose tolerance gives acute system in understanding that when glucose is inserted in the body what happens immediately in the blood glucose level, the blood sugar should come back to normal in two hours. If it does not come to normal, then the person is glucose intolerant. There is no glucose absorption which results in energy deprivation and other pathophysiological changes. So, in order to check this, Sub chronic study was done in which they monitored the Glucose levels of controlled groups and experimental groups that is the one who also fed with these plants extracts.

In the groups where hibiscus cannabinus leaves (Pundi), Cicer arietinum leaves (chana) aqueous solution was used there was a slight fall in blood sugar after 5 days. In case of Lactuca scariola (Hattarakipallye) there was a steep fall in blood glucose level after 2 weeks. Hence by this it was concluded that these herbs help to reduce blood sugar level and Hattaraki gives the maximum benefit.

## In Vivo: Subchronic Glucose Intolerance

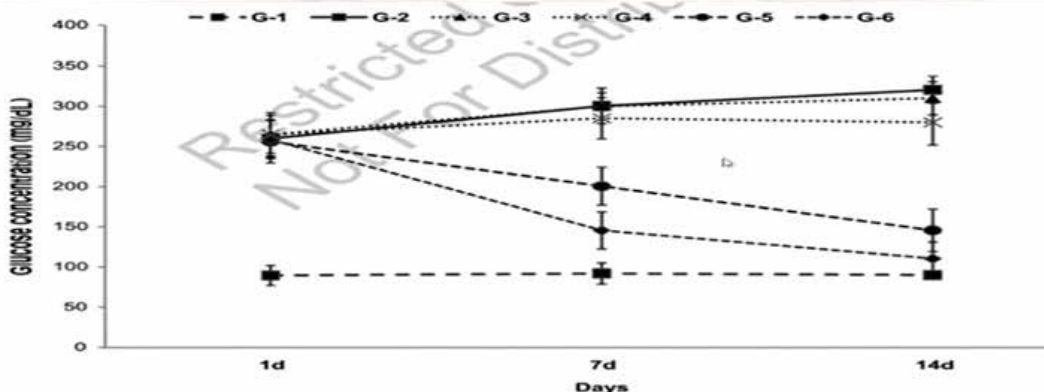


Fig. (2). Effect of sub chronic (14 days) supplementation of leaves extracts (12.5 mg/100 g body weight) on blood glucose level in diabetic rats ( day 1, 7 and 14). Treatment groups: 1, control; 2, Diabetic; 3, diabetic + *Hibiscus cannabinus* Linn extract; 4, diabetic +, *Cicer arietinum* Linn. Extract; 5, diabetic + *Lactuca scariola* Linn extract; 6, diabetic + glipizide (0.25 mg/100 g).

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**In Silico :3-D structure of target proteins**

GLUT-4                      HIF-1α

**In Silico : ADME studies of compounds Of *Lactuca Serriola Linn***

Bioactive molecule	Molecular weight g/mol	XLogP3-AA	Hydrogen Bond Donor Count	Hydrogen Bond Acceptor Count	Lipinski Rule
Lactucopicrin	410.4	1.1	2	7	Yes
Oxalic acid	90.03	-0.3	2	4	Yes
Luteolin	448.4	0.5	7	11	Yes
Quercetin	302.23	1.5	5	7	Yes
Kaempferol	286.24	1.9	4	6	Yes

### In Silico Studies on *Lactucaserriola Linn* (Hattaraki)

The Glucose in the blood, they need to be absorbed by the skeletal muscles, if they absorb then excretion of glucose in the blood is reduced, which will solve the problem of Diabetes. Glucose transporter protein 4 (GTP4) THIS IS THE RECEPTOR through which insulin dependent pathway enters in the cell and utilize. In Diabetic cases, it is found that GTB4 is not functional. GTB4 has great role in absorbing the glucose from the skeletal muscles.

HIF1-α is an oxygen sensing gene. When study was done the bioactive substances found in Hatrraki are Lactucopicrin, Oxalic acid, Luteolin, Quercetin and Kaempferol. Out of this Oxalic acid has the lowest molecular weight which is very important

in understanding the activation and inactivation of specific target proteins of gene, and further the effect of *Lactucaserriola Linn* (Hattaraki) ON FASTING blood glucose, fasting plasma insulin and insulogenic index was checked were there was the decrease in insulogenic index on aqueous medium of Hattaraki as shown in below data: -

It clearly states that in In-Vitro study as well as In Silico Study and In Vivo study shows that *Lactucaserriola Linn* (Hattaraki) has great impact on Diabetes Miletus specifically to reduce the blood glucose level.

### *Lactucaserriola Linn* and Cardiovascular System

Diabetes and heart diseases are interlinked. Persons

**Effect of *Lactuca Serriola Linn* on Fasting blood glucose, Fasting Plasma Insulin and Insulinogenic index.**

Parameters	Control (G-1)	Diabetic (G-2)	Diabetic + <i>Lactuca serriola Linn</i> extract (G-5)	Diabetic + glipizide (G-6)
Fasting blood glucose (mg/ dL)	85.00 ± 5.56 <sup>a</sup>	180.45 ± 13.58 <sup>b</sup>	110.00 ± 12.82 <sup>d</sup>	105.23 ± 14.65 <sup>d</sup>
Fasting plasma Insulin (µg/L)	1.00 ± 0.17 <sup>a</sup>	0.66 ± 0.19 <sup>b</sup>	0.65 ± 0.18 <sup>b</sup>	0.97 ± 0.16 <sup>a</sup>
Insulinogenic -index	0.0043 ± 0.0005 <sup>a</sup>	0.0065 ± 0.0004 <sup>b</sup>	0.0053 ± 0.0003 <sup>c</sup>	0.0044 ± 0.0002 <sup>a</sup>

Treatment groups: 1, control; 2, Diabetic; 3, diabetic + *Lactuca serriola Linn* extract; 4, diabetic + glipizide. Horizontal values are the mean ± SD of six observations in each group. In each row, values with different superscripts (a, b, c, d) are significantly different from each other (p<0.05).

## Electrophysiology Analysis of *Lactuca Serriola Linn* (Hattarki)



Mean arterial pressure (MAP), heart rate (H) and baroreflex sensitivity (sympathetic) in prediabetic (group 1), diabetic (group 2) and diabetic + *Lactuca serriola Linn* (14 days treatment)

Variables	G-1 (Pre diabetic)	G-2 (Diabetic)	G-3 (Diabetic + <i>L. serriola Linn</i> )	P Value
SBP, mmHg	100.23 ± 10.23 <sup>a</sup>	146.23 ± 13.56 <sup>b</sup>	120.34 ± 12.23 <sup>c</sup>	0.0000
DBP, mmHg	74.45 ± 11.00 <sup>a</sup>	98.45 ± 11.54 <sup>b</sup>	80.45 ± 10.45 <sup>a</sup>	0.0000
PP, mmHg	25.78 ± 3.66	47.98 ± 3.84	39.89 ± 3.48	0.0000
MAP, mmHg	100.45 ± 15.34 <sup>a</sup>	124.50 ± 12.45 <sup>b</sup>	109.75 ± 12.55 <sup>a</sup>	0.0001
HR, bpm	327.2 ± 72.9 <sup>a</sup>	274.92 ± 58.34 <sup>b</sup>	300.45 ± 23.56 <sup>c</sup>	0.0001

suffering from diabetes are also at a risk of various heart diseases. Hence the study was done in the blood pressure reading of the rat before the diabetic condition was taken then given withalloxan to the rats and made them Diabetic and then took readings of Blood pressure and the other parameters. Afterwards that the Diabetic Rat were fed with *Lactucaserriola Linn* (Hattaraki) for 14 days and then took the readings again and found that after feeding the rats with Hattaraki, there was modification in systolic and diastolic blood pressure and also heart rate got modified as shown in below image:-

### Blood Pressure and Baroreflex Sensitivity

The baroreflex or baroreceptor sensitivity (BRS) index is a measurement to quantify how much control the baroreflex has on the heart rate. There should be a balance in reflex mechanism that controls the heart rate and blood pressure. Yoga and especially pranayama helps in balancing the Baroflex Sensitivity. Hatha Yoga balances the Baroreceptor reflexes very clearly. Baroflex sensitivity got reduced in Diabetic group and it again comes to normal in group 3 where Diabetic group is fed with Hattarki.

### Diabetis GLUT4 HIF-1 $\alpha$ *Lactuca serriola Linn* in Vivo

The three parameters on Group 1, 2 and 3 were checked. Group 1 is Prediabetes group 2 is Diabetic and group 3 is Diabetic who is fed with extract of Hattarki. It was found that the concentration of Nitric oxide (NO) got reduced in Diabetic. Nitric oxide helps in dilating the blood vessels and even the gene that synthesis Nitric oxide also got reduced in Diabetic but it came again near to normal in Group 3.

### Cardiovascular Histopathology

The wall area of the artery can be measured by subtracting the Lumen area from the total vessel area. Better the diameter of artery better the throw of the blood. Another study was done on "Comparison of Normalized wall index of Coronary artery among groups". Where the artery walls were examined under 10X and 45 X magnifications and it was found that there was increase in wall thickness in Diabetic and it got reduced in Group 3 where the diabetic was fed with Hattarki, which helped in the better flow of blood.

## Effect of *Lactuca Serriola* Linn (*Hattarki*) leaves extract on sNOS3, sNO and sHIF-1 $\alpha$ concentrations in diabetic rats.

Parameters	Group 1	Group 2	Group 3	Group 4
Serum NOS $\beta$ (nmol/mL)	7.13 $\pm$ 1.11 <sup>a</sup>	4.68 $\pm$ 1.53 <sup>b</sup>	6.45 $\pm$ 2.16 <sup>d</sup>	6.67 $\pm$ 2.34 <sup>d</sup>
Serum NO ( $\mu$ mol/l)	22.32 $\pm$ 3.04 <sup>a</sup>	10.45 $\pm$ 3.20 <sup>b</sup>	15.11 $\pm$ 1.75 <sup>c</sup>	17.36 $\pm$ 2.22 <sup>d</sup>
Serum HIF-1 $\alpha$ (pg/mL)	150.21 $\pm$ 5.28 <sup>a</sup>	118.23 $\pm$ 12.32 <sup>b</sup>	200.50 $\pm$ 23.72 <sup>d</sup>	175.08 $\pm$ 8.15 <sup>c</sup>

Treatment groups: 1, control; 2, Diabetic; 3, diabetic + *Lactuca serriola* Linn extract; 4, diabetic+ glipizide. Horizontal values are the mean  $\pm$  SD of six observations in each group. In each row, values with different superscripts (a, b, c, d) are significantly different from each other (p<0.05)

### Conclusion

The three Plants of North Karnataka, Hattarki was the most effective one on Diabetes and Cardiovascular health. *Lactucaserriola* Linn (*Hattaraki*) contains bioactive molecule Oxalic acid which plays an important role in controlling the two-transport protein GLUT-4 and HIF1- $\alpha$ . In diabetes GLUT-4 decreases which in turn

decreases the insulin signaling which alters the Glucose Homeostasis which results in decrease of NOS Nitric syntheses concentration and HIF1- $\alpha$  Concentration. All this results in the alteration of Vascular Integrity. This Vascular Integrity can be regained through the use of *Lactucaserriola* Linn (*Hattaraki*). ■



The image has been taken from "Unique Indigenous Anti-Diabetic Plants of Karnataka" online webinar



**Ms. Suchitra Pareekh**  
Speaker & Coach in Samkhya-Yoga,  
Mumbai.

# Taste the Ultimate Solution to Pain

Ms. Suchitra Pareekh is an Author, a Transformation Coach, and a Teacher of the Samkhya and Vritti Changing Technique. She is also a member of the Academic Committee of the Yoga Institute, Life Member of The International Board of Yoga, Member of Yoga, The Board of HSNL University, and Inspector of Examination for the CICSE Board. Her expertise lies in teaching Yogic Values to children using fun activities. Her keen eye for detail made her the first-ever Yoga Auditor in Ayush-QCI Yoga Scheme.

## Abstract

It is a natural tendency of all life forms to avoid pain, to get rid of the pain. Our efforts either postpone pain or give temporary relief and most people are fine with it. If one has a burning desire to totally eradicate pain, one searches hard. Such a search may lead one to Samkhya. Samkhya is an ancient Indian philosophy that provides an absolute solution to pain resulting in Liberation. Pure Samkhya is the 'Philosophy of Realism' and in today's time, losing ground as not many people take to it. Due to subtleness of the concepts and logical self-analysis involved not many are willing to put in the necessary effort to benefit from them. These difficulties can be greatly removed with the approach of relating them to everyday life-giving impetus to deeper inquiry. One can taste the solution to pains by observing oneself with a concept in mind and journaling.

## Introductory Remarks

Director MDNIY explained that the entire Yoga lies in Om Shanti Shanti Shanti, Om is Pranava, and the importance of the Pranava is explained in the Yoga sutra. In Samkhya, the entire Samkhya is to overcome the Tapatraya i.e., Adibhotika, Adidevika, and Adhyatmika Hence, this simple mantra provides the entire essence of Yoga sutra Samkhya philosophy by Maharishi Kapil. This knowledge was not taught by anybody to Maharishi Kapil but he realized it himself and one can say he was the first one to get liberation.

**M**s. Suchitra Pareekh delivered an informative session wherein she explained briefly about the topic, "Taste the Ultimate Solution to Pain" as a part of the Friday Weekly Webinar on 22<sup>nd</sup> January, 2021.

Taste is one of the first things a child does when he is born. Taste requires the adequate functioning of all the sense organs not just the tongue only. Hence, one can understand the essence of Samkhya by tasting it. Samkhya is the deep knowledge of the self. Samkhya can be considered the practical form of Yoga however Samkhya needs to be practiced in life and it is responsible to bring awareness. First thing that Samkhya begins with is dukkha i.e., the description of dukkhatraya. There are three types of dukkha i.e., Adibhotika, Adhidevika and Adhyatmika. Initially the dukkha is individualistic in nature. If one is not able to classify his dukkha into one of these three categories of dukkha, then one may not be able to find out appropriate solution to his problems.

## Experimental Activity

This activity will help in how experience can occur and learning can sink below the conscious level for this activity is to understand why there is pain and pleasure in life.

## Trigunas in Samkhya Philosophy

One of the important concepts in the Samkhya philosophy is the concept of Gunas. There are three for this activity to understand why there is pain and pleasure in life. types of guns, these are Rajas, Sattva, and Tamas. These three are the primordial matter in Samkhya philosophy and entire universe is made of these three Gunas only. These Gunas are always together never separate from each other however they vary on the basis of predominance in a person. These guns have the nature of pleasure, pain and delusion. Anything that creates pleasure is sattva predominant,

that which makes pain is rajas predominant and that which creates confusion and delusion is tamas predominant. If these three Gunas are in equilibrium then the person is away from misery. However, if the balance between these Gunas is not maintained then the person suffers from dukkha. Hence inquiry in Samkhya is the ultimate solution to pain. If one can see the play of three Gunas and understand them, he will be able to overcome the pain and suffering of life and start his journey toward the liberation of Kevalya.

## Conclusion

The three Gunas play a major role in life, as the predominance of the Gunas results in the dukkha, the person might face in his life. However, bringing the equilibrium between these Gunas and having the clear understanding of Samkhya's philosophy about the Tapatraya will help in overcoming the pain and suffering of the life. Hence, it acts as the ultimate solution to pain. ■



*The image has been taken from "Taste the Ultimate Solution to Pain" online webinar.*





**Dr. Ravindra Kumar**  
Former Vice-Chancellor  
CCS University, Meerut &  
Ombudsman,  
Swami Vivekanand Subharti  
University, Meerut

# An Insight on Gandhian Thoughts and Work

Padma Shri Award recipient Professor (Dr.) Ravindra Kumar is the Editor-In-Chief of the Global Peace International Journal. He has written more than one hundred books and four hundred articles on the great personalities of the Indian sub-continent, especially Gautama Buddha, Swami Vivekananda, Mahatma Gandhi, Sardar Vallabhbhai Patel, and on various social, political, educational, cultural, and academic issues to his credit. He has organized a number of seminars, symposiums, and workshops at the national and international level on subjects related to values of Gandhian philosophy, education, religion, politics, non-violence and democracy, morality and ethics in public life, human values and rights, peace and development.

## Abstract

Mahatma Gandhi was a staunch believer in truth. He had his ideas in almost all areas of life including economic, political, educational, social, and cultural. Mahatma Gandhi's philosophy is looked at as a live experience with potential for transformation leading to global awakening.

## Introductory Remarks

Director MDNIY reiterated that the ideas of Mahatma Gandhi are applicable to almost all aspects of society, including economics, politics, education, and social issues. He always told that "My life is my message". Many elements of Gandhi have influenced people but one of the most important was "karma", "what we do" and "what we say". The work of Gandhi Ji was multi-directional. He had unique thoughts in the fields of spiritualism, education, politics, and economics too. There was uniformity in what he said and did. Gandhi Ji is accepted all over the world as a statesman, a Mahatma, who fought for human equality, and freedom.

**D**r. Ravindra Kumar discussed the thoughts and actions of Gandhi Ji and his ideas and how many personalities adopted that path on 29<sup>th</sup> January, 2021.

## Relevance of Gandhian Principles

Many writings and substantial work has been done on him, both during his lifetime and after his death, keeping his life's work and thoughts at the center. At present, there is probably no one like him in the whole of South and South East Asia. Gandhi study and research centers are established in many universities and higher education institutions across the world.

Everyone is also aware of this fact, in India itself, Gandhi's political and cultural views, academic and educational perspectives, and economic thought has been criticized many times and is still criticized. Gandhiji has been the target of his political critics for keeping politics connected with morality in every situation. The public action taken by him while staying within the ambit of non-violence in the political field was also criticized and even his book "Hind Swaraj" became the subject of intense criticism. Critics saw Gandhi's nationalism as one-sided in place of broad humanism.

His statement “For me, there is no difference between patriotism and human love, because I am a human lover, therefore I am also a country lover”. Seeing this knowingly and unknowingly, his nationalistic views were criticized as similar to the nationalist approach of the west. Not only this, Gandhiji’s clear and very progressive statement that “Keeping the great human welfare spirit in the heart, one has to move forward continuously on the path of development, if he does not move forward then he will have to fall behind.”

The country of villages, “India” provides the guarantee of livelihood to the common people, ensuring the self-reliance of the people and the most important small industries in the economy of the country, Gandhi gave priority to cottage industries related to agriculture over foreign industries. Economists, supporters of big industries, supporters of socialism in the west, and communist people did not like it. On the basis of moral development, Mahatma Gandhi wanted to change of hearts of the wealthy, industrialists, capitalists, and landlords and wanted to convert them from owners of resources and wealth to trustees but after his death, even after a successful unprecedented event like the “Bhoodan movement” people who accept violence as the possibility of every circumstance were not ready to accept the truth.

The matter of understanding and respecting other cultures to be able to appreciate their specialties comes after you have learnt to respect and imbibe your culture however, many people did not like this idea of Gandhiji. Although at the very beginning of his talk about culture, he also said that I never meant to say that we are avoiding the rest of the world, building walls around, this is too far from what I think. Gandhiji’s idea of culture has been a testament and is still there.

Gandhi’s views on education were unique. On the basis of his educational ideas, he established himself as the best teacher. According to him, a realistic scheme of education must be closely integrated with the physical and social environment of the student. He said, “It is called the new method of education, for it is not a foreign importation or imposition, but is consistent with India’s environment, which is predominantly made up

of villages. It believes in the basic objective of the all-round development of human beings.

In a nutshell, that is why millions of people around the world took to Mahatma Gandhi as their ideal, taking lessons from his non-violence-centered path and actions, hoping for equality, freedom, rights, and justice.

Everyone has the right to critically analyze Gandhiji’s thoughts and actions with his arguments. Critical analysis or review on the basis of solid arguments can never weaken an idea. On the contrary, a critical analysis of an idea or path strengthens it, and makes it healthy. Gandhi’s thoughts and path can also not be an exception to this reality. Not only this, Gandhi’s thought and way, after critical analysis, shakes his biggest critic to the depths. Martin Luther King Jr. initially disagreed with Gandhi’s non-violence-centered idea and path to a greater extent. Martin Luther King Jr. in his book “Stride Toward Freedom,” King described the principles of nonviolence. He wrote that it is possible to resist evil without using violence.

In the first part of his public life, Nelson Mandela did not fully agree with the idea of Mahatma Gandhi and the path of non-violence devoted to Gandhi’s persecution. People familiar with him and experts and historians are also aware of the truth that there came a time when he went far away from Gandhi’s philosophy, but Mandela, standing at the door of inner life’s pursuit of freedom, accepted that non-violence was the real path of truth. Martin Luther and Nelson Mandela both made them as the result of their experiences in the struggle against oppression and atrocities in the United States and South America. This undoubtedly made them understand the basic spirit of Gandhi’s thoughts.

The fraternity concept of Mahatma Gandhi can be seen in his views on the concept of freedom based on universality. Those who disagree with his political, and socio-economic ideas or ideas regarding nationalism should understand this.

Expressing his commitment to the welfare of the entire human race, he said “My mission is not merely the brotherhood of Indian humanity. My mission is not



merely freedom of India, though today it undoubtedly engrosses practically the whole of my life and whole of my time. But, through the realization of the freedom of India, I hope to realize and carry on the mission of the brotherhood of man. My patriotism is not an exclusive thing. It is all-embracing and I should reject that patriotism that sought to mount upon the distress or exploitation of other nationalities. The conception of my patriotism is nothing if it is not always, in every case without exception, consistent with the broadest good of humanity at large.”

In the year 1939, Gandhiji refused to cooperate with the imperialists in the Second World War against the wishes of senior leaders like Sardar Vallabhai Patel, Pandit Jawaharlal Nehru, Maulana Abdul Kalam Azad, and his close associates and even on the condition of guaranteeing India’s independence. Because humanity had to be crushed in the Great War, innocent blood had to be shed, and not even a small amount of welfare will happen. Therefore, instead of supporting the imperialists, he asked them to leave India. Individual

Satyagraha in the year 1994 and then the Quit India Movement of 1942 i.e., August Revolution is the result of that call.

With the slogan of Quit India, Mahatma Gandhi hoped India would devote itself to achieving the freedom of each and every person living in the world with its independence and progress. He also emphasized the point of world welfare, which meant the rise of everyone around the world. The year 1925, Gandhi clearly stated: “I want India’s rise for the benefit of the entire world.”. I do not want India to rise on the ruins of other nations. India’s freedom must revolutionize the world’s outlook on peace and war.”

### Conclusion

Gandhism has even more relevance in this age, and Gandhi will inspire generations of individuals fighting for the good of society. In order to put Gandhi’s thoughts into practice, it is necessary to refine or adapt them to the needs of the present. ■



*The image has been taken from “An Insight on Gandhi a Thoughts and Work” online webinar*



**Dr. Ganesh Shankar Giri**  
HoD, Yoga Education and Dean,  
School of Educational Studies,  
Dr H.S. Gaur University, M.P.

# Dr K.S. Joshi: Life and His Contribution in Promotion of Yoga

Dr. Ganesh Shankar Giri is Professor and Head of Department, Yoga Education and Dean, School of Educational Studies, Doctor Hari Singh Gour University, Sagar (A Central University). He is a Former Director, CCRYN, Govt. of India, President-World Council for Psychotherapy- Asian Chapter, President-Yoga & Psychotherapy Association of India.

## Abstract

Dr. K.S. Joshi was a renowned Yoga scholar. He was a disciple of Swami Kuvalayanand Ji and has a great contribution in the field of Yoga. He established the first Yoga Department at Dr. Hari Singh Gaur University, Sagar, and M.P. first of its kind in any Indian University. He was Head of the Department of Yoga for 30 Years. He has several books and research papers to his credit. He also started a Journal 'Yoga Awareness' for the promotion of Yoga.

## Introductory Remarks

Director MDNIY shared the valuable and precious teachings of Dr. Joshi. Dr. Joshi guided and motivated many of his disciples and enlightened their path in the field of Yoga. His teachings are also acting as the pathway for the Yoga practitioner to excel in their Yogic Sadhana. Dr. K.S. Joshi was not just the Guru or teacher but a pure soul who left this world at the age of 91 years.

An elaborative lecture was delivered by Dr. Ganesh Shankar Giri wherein he highlighted 'Dr. K.S. Joshi: His Life and Contribution in Promotion of Yoga' on 5<sup>th</sup> February, 2021.

## About Dr. K.S. Joshi

Dr. Joshi was born on 16 September 1929 in Baramati, Pune in a small farmer family. He was the eldest among five brothers and a sister. Basically, he was an agriculturist. He completed his primary education in his hometown and completed his graduation,

B.Sc. in agriculture with first division in 1951, post-graduation, M.Sc. in Horticulture from University of Pune, Maharashtra in 1953 and completed PG diploma opportunity to do the state service. He came in contact with Swami Kuvalayanadain KaivalayaDhama in Lonavala, after going through the journal of Yoga Mimamsa (Yog Mimamsa journal was started in 1924 in Kaivalyadhama, Lonavala). After post-graduation, he completed his certificate course under the guidance of Swami Ji. This institute was worldwide famous for its scientific and literary research. This institute was established by Swami Kuvalayanand Ji in 1924. Since then, this institute used to publish its research finding in the Yog Mimamsa journal. The research-based evidence for Yoga attracted Dr. Joshi more, as he was himself from the science background. Sagar University approached Swami Kuvalayanand Ji with the idea to bring Yoga as a curriculum to their university. Hence, Joshi Ji was referred by Swami Ji to work as a Yoga teacher at Sagar University, Madhya Pradesh.

Kalidas Sada Shiv Joshi better known as the K.S. Joshi,

started working in the department and began with a junior diploma as an undergraduate. He also created the syllabus under the guidance and consultation of Swami Ji only. The syllabus included different aspects such as anatomy and physiology, Shat Darshana of Indian philosophy, Veda Upanishads, etc. In 1973 he started a postgraduate diploma. As Joshi Ji was from a science background hence, Swami Ji advised him to work on the research aspect of Yoga philosophy, hence he took admission in master course in philosophy during the work and completed MA in Darshana in 1962 with the first distinction and was the university topper at that time. After completing his master's degree in Darshana, he enrolled for Ph.D. in 1965 and published the book named 'Yoga and Persona' which is worldwide famous now. In 1978 he completed a diploma in naturopathy from Gorakhpur School of Natural Therapeutics. One of the greatest achievements of this university was, that the first Ph.D. in this university was done in 1980 under his guidance only. He made the provision that any science student with a background in Yoga such as a junior or PG diploma, or master's can enroll for Ph.D. Three students were registered and the first Ph.D. was awarded in 1980. He had also worked along with Dhirendra and Naresh Bhramachari by providing them guidelines related to Yoga.

MDNIY and CCRYN were one of the bases to promote Yoga during that time. In 1982 he started and was the chief editor of a journal of Delhi, i.e., Yoga Awareness. One of the conferences took place in the 70s under the guidance of Dhirendra Bhramachari and one international conference was conducted under the

guidance of Swami Bhagwan Dev Ji in New Delhi. Joshi Ji was also awarded the Yog Shiromani by Giani Zail Singh, President of India for his contribution to the field of Yoga.

Joshi Ji also structured the Indian Yog Society to spread the short-term courses. One of the best qualities in him was his ability to organize. He was Head of the Department throughout and helped in enhancing different aspects of Yoga teaching. He continued with Seva through seminar and promoted Yoga in different areas of the world with his teaching and publications. His famous publications include Yoga and Personality, Keep Fit Yoga Way, Yogic Pranayama, First Step to Yoga, Yoga for Health and Happiness, Pranayama, Yoga Mysticism, and Religious Experience, Speaking of Nature, Yoga, and Nature Cure Therapy, Yoga in Daily Life, Wisdom and Art of Yoga, Pranayama in Hindi Language, Yoga Se Arogya in Hindi, The Mystified: Understanding J. Krishna Murti. Some special contribution includes several visits to a country like the Philippines, France, Italy, and Germany for giving the lectures. He provided a great contribution to Indian society i.e., by providing over 400+ pieces of content related to Yoga for Hindu Vishwakosh or Hindu encyclopedia.

## Conclusion

Joshi ji's absence will always be there without a doubt. However, his teaching and guidance will always be there throughout. He lived the life of a Yogi and lightened the path for those who are on the journey of Yoga. ■



The image has been taken from "Dr. K.S. Joshi: Life and His Contribution in Promotion of Yoga" online webinar.



**Dr. Raj Kumar Yadav**  
Professor of Physiology, Integral  
Health Clinic, All India Institute of  
Medical Sciences (AIIMS),  
New Delhi

# Obesity, Cardiovascular Diseases and Yoga

Dr. Raj Kumar Yadav is an eminent physiologist, teacher, and mentor extraordinaire and his core values are driven by simplicity, honesty, dedication, and love for life. He has over 20 years of teaching and learning experience coupled with equal and rigorous research as well as patient care experience. He is presently leading the Integral Health Clinic (IHC) at the institute where primarily lifestyle-related chronic diseases, like diabetes, cardiovascular diseases, obesity, and stress, are being managed. His key research areas include Mind, Medicine & Meditation, Yoga-based lifestyle interventions, obesity, and endometriosis, and technically cover genomics and proteomics besides newer stress & immune markers.

## Abstract

Obesity is a global health burden and its prevalence is increasing substantially due to changing lifestyles. It contributes directly to incident cardiovascular risk factors, including dyslipidemia, type 2 diabetes, hypertension, and sleep disorders. Obesity also leads to the development of cardiovascular disease and cardiovascular disease mortality independently of other cardiovascular risk factors. A Yoga-based lifestyle intervention appears to be a promising option in reducing the risk for CVD as well as the management of patients with CVD as it is simple to follow and cost-effective with high compliance.

## Introductory Remarks

Director MDNIY shared that during the last year non-communicable diseases, especially Cancer and Diabetes mellitus, are rising exponentially because of our non-healthy lifestyle and many of the toxins we are taking in terms of food, water, and air. Therefore, detoxification is very important. Here, Yoga plays an important role. Along with meditation, yogic practices like asana, pranayama, and relaxation will help in the management of the diseases.

**A**n informative lecture was delivered by Dr. Raj Kumar Yadav who discussed the Cardiovascular System and the effect of Obesity on Cardiovascular health.

## Failure of the last concept brought WHO to initiate a new strategy

Now, WHO emphasizes more “Primary care” which aims at a “Healthy Lifestyle and a Healthier environment.

## Human Heart and Cardiovascular Health

The cardiovascular system consists of the heart, which is a muscular pumping device, and a closed system of vessels called arteries, veins, and capillaries. The human heart size is about a fist and weighs approx. 250-350 grams. In adults, the heart beats around 60-80 beats per minute and in infants, it is more than 70-190 beats per minute. And Heart pumps blood around 5-6 liters of blood in the body. The 3 main arteries of the heart are the left anterior descending, the left circumflex arteries, and the right coronary artery. Blockage of any of these arteries leads to a heart attack.

**Can lifestyle changes reverse coronary heart disease ?**  
**The lifestyle heart trial**

- **Prospective RCT: The Lifestyle Heart Trial**
- Patients with **angiographically** documented CAD were randomly assigned to :
  1. Experimental group (n=28), low fat veg diet, stopping smoking, stres management, moderate exercise
  2. Control group (n=20).
- Overall, 82 % experimental group had change towards regression, even in severe coronary atherosclerosis after 1 year.

• **Dean Ornish et al. Lancet 1990**

**Research conducted to check the Effect of Lifestyle change on Cardiovascular Health**

Two studies were done on lifestyle effects on cardiovascular health. The first study “Can Lifestyle change reverse coronary heart disease? The lifestyle heart trial”, research conducted by D Ornish. A randomized control trial was conducted to check “Patients with Angiographically documented CAD were assigned to experimental group and control group. After a year, 82% experimental group had changed towards regression, even in severe Coronary Atherosclerosis.

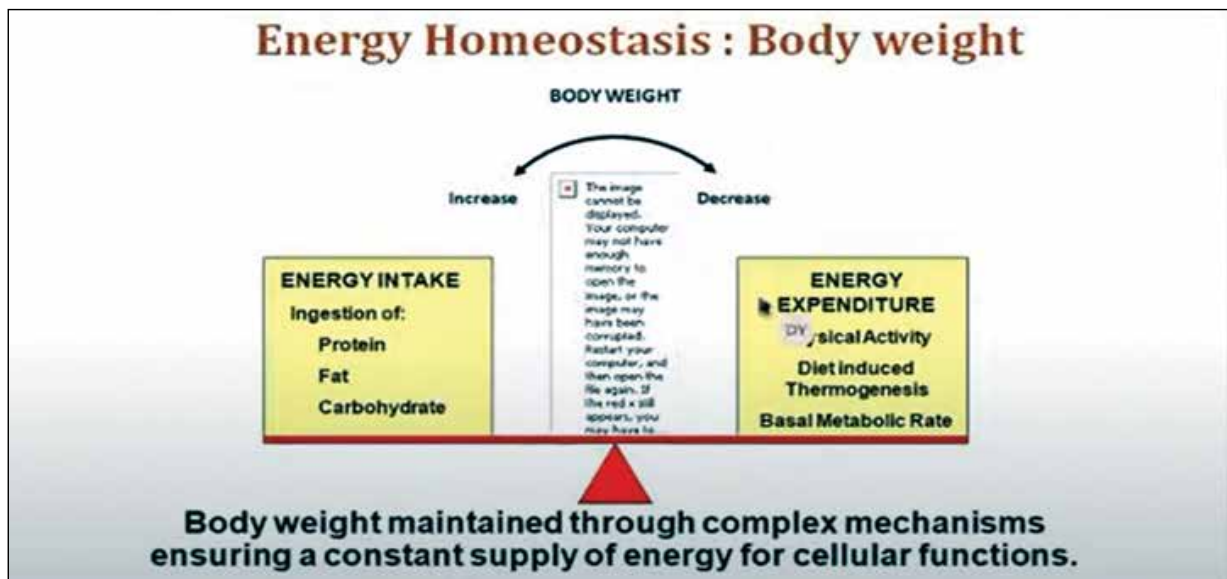
The second study on “Retardation of coronary atherosclerosis with Yoga lifestyle intervention” was conducted by S.C. Manchanda 1, R.Narang, K.S. Reddy, U. Sachdeva, D. Prabhakaran, S. Dharmanand, M. Rajani, R. Bijlani.

In this study, after a year significant decrease in the number of heart-related problems was seen in the

experimental group and there was a reduction in revascularisation procedures. More improvement happened in the Yoga group than in the controlled group.

**Factors that contribute to the Better Health**

A healthy body weight mainly contributes to good physical health. Everyone should always keep checking on their body weight and BMI. Body/mass index (BMI) is a person’s weight in Kilograms divided by the square of height in meters. BMI is an inexpensive and easy screening method for weight categories—underweight, healthy weight, overweight, and obesity apart from this for better physical health, there should be a balance between energy intake and energy expenditure. If energy intake is more than the energy expenditure than it will increase the body weight which will result in “Obesity”.



## Obesity

Obesity is defined as the excess accumulation of body fat. This excess accumulation is the result of a positive energy balance where calorie intake exceeds calorie expenditure. In India 30-40 % of the population is under the overweight category. In cities, this number is more than in villages. More than 25 BMI is considered an obese category in India. BMI Chart for India is different from foreign countries. The Journal of Alternative and Complementary Medicine published a Research “Adiponectin, interleukin-6, and cardiovascular disease risk factors are modified by a short-term Yoga-based lifestyle intervention in overweight and obese men” by Kumar Sarvottam 1, DiptiMagan, Raj Kumar Yadav, Nalin Mehta, Sushil C Mahapatra. This research concluded that short-term Yoga-based lifestyle intervention may be an important modality to reduce the risk for CVD as indicated by weight loss, reduction in systolic blood pressure, an increase in adiponectin, and a decrease in IL-6 in overweight and obese men,

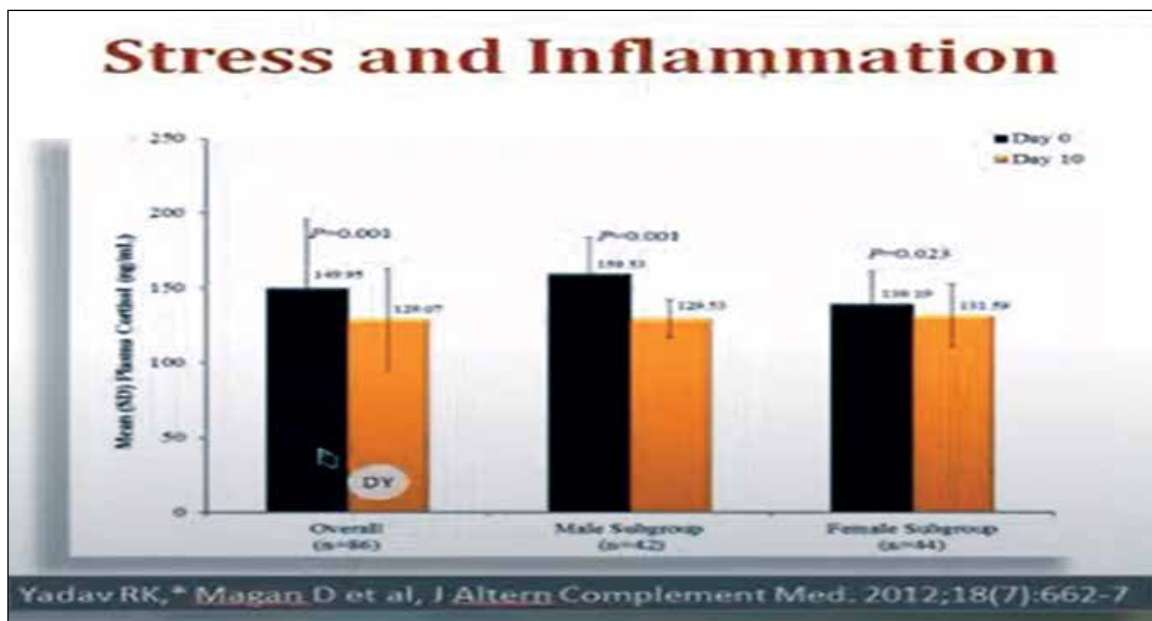
## Relationship between Obesity and Stress

Stress is basically a complex series of reactions in response to demanding and threatening situations. The speaker quoted here: “Everyone knows what Stress is but nobody really knows”

Stress, in general, can be physical, mental, or emotional. It is the root cause of a lot of diseases. Stress can actually be a good thing as long as it's not causing a negative effect. In fact, Hans Selye introduced the concept of stress having two categories: distress and eustress. Distress/Bad Stress is stress that negatively affects you and eustress/good stress has a positive effect on you. Eustress is what energizes us and motivates us to make a change. Good and acute stress is manageable and somewhere important also but bad or Distress and Chronic one is the main problem that degrades our health.

## Stress, Immunity, and Inflammation

Stress and the immune system have a complex relationship. Stress can cause the immune system to produce an inflammatory response, which can be temporarily beneficial for fighting germs. However, if inflammation is persistent and widespread, it can contribute to chronic diseases inflammation is part of the biological response of body tissues against harmful stimuli such as pathogens, damaged cells, and Irritants. It is the generic response and comes under Innate Immunity. An increase in stress reduces immunity. The Speaker informed that in the study they have did, it was found that Yoga based lifestyle Intervention can reduce stress and Inflammation.



## Risk Factors of Cardiovascular Disease

With Age Risk of Cardiovascular disease Increases. The majority of people who die of coronary heart disease are 65 or older. While heart attacks can strike people of both sexes in old age, women are at greater risk of dying (within a few weeks). Higher total Cholesterol leads to a higher risk of Cardiovascular Risk, higher HDL is usually Protective Higher systolic blood pressure also increases the risk and if you are a smoker chances of cardiovascular disease are more. The risk that smokers will develop coronary heart disease is much higher than that for nonsmokers.

Cigarette smoking is a powerful independent risk factor for sudden cardiac death in patients with coronary heart disease. Cigarette smoking also interacts with other risk factors to greatly increase the risk for coronary heart disease. Exposure to other people's smoke increases the risk of heart disease even for nonsmokers.

## Modifiable Cardiovascular Risk

The good news is that the effect of many risk factors can be changed (you cannot change the risk factor, only its effect). The effect of these modifiable risk factors can be reduced if you make lifestyle changes. These are the Risk that can be controlled through Yoga based lifestyle intervention. Non Modifiable risk factors are Age, Gender, and Family history.

## Conclusion

For the Prevention of Cardiovascular Disease, it is mandatory that one should also quit smoking and manage daily stress and maintain a healthy weight, diet, regular exercise, and especially Yoga. Everyone should include Yoga in their routine for complete physical, mental spiritual, and social well-being. ■



*The image has been taken from "Obesity, Cardiovascular Diseases and Yoga" online webinar*



**Dr. Gyan Shankar Sahay**

Former Assistant Director of Research,  
Philosophico-Literary Research Department  
Kaivalyadhama Yoga Institute, Lonavala,  
Maharashtra.

# Hatha Yogic Practice for Health and Well-Being

Dr. Gyan Shankar Sahay is an expert on HathaYoga texts, Indian Philosophy, and Patanjala Yoga Sutra. He has around 34 years of teaching experience. He has also taught Indian Philosophy, Patanjali Yoga sutras, and Traditional Yogic texts. Dr. Gyan Shankar Sahay has devoted his entire life to studying the literary aspect of Yoga and imparting the teachings of Indian philosophy and traditional Yoga to the younger generation in a very simple and precise manner. He continues to inspire the students of Yoga through his writings and live lectures.

## Abstract

Yoga is a discipline for the holistic development of our physical, mental and spiritual aspects. Nowadays, Yogic practices are very much accepted for the promotion and propagation of health. HathaYoga consists of shodhanakriyas, asana, pranayama, mudra & bandha, and dhyana practices which result in the optimal, efficient functioning of the system that contributes to good health and wellbeing. Achievement of health and well-being can help achieve the ultimate goal of human life: happiness and harmony.

## Introductory Remarks

Director MDNIY highlighted the importance of Hatha Yoga. One of the widely used Hatha Yoga texts is Hatha Yoga Pradipika by Yogi Swatmarama. It elaborately explains Hatha Yoga as a systematic way of detoxification of the mind-body complex. It helps to reach the ultimate goal of Yoga which is Raja Yoga. Hatha Yoga is very useful in a healthy lifestyle and it also works on lifestyle-related problems.

**A**s a part of the Friday Weekly Webinar, Dr. Gyan Shankar Sahay delivered an elaborative lecture wherein he highlighted Hatha Yogic practices for health and well-being on 19<sup>th</sup> February, 2021.

The hierarchy in an organism includes cells to tissues, tissues to organs, organs to organ systems, and then to organisms. The health of an organism depends on the healthy functioning of these systems of the body. Proper functioning of the system means the proper functioning of the organs. In order to maintain the

health of the organs, tissues should stay healthy and healthy tissue requires healthy cells. The health of a cell depends upon nourishing elements supplied to it. These nourishing elements are transported to different parts of the body through various systems. It includes protein, fats, sugar, and salts. These are directly involved with the digestive system. Oxygen is directly involved with the respiratory system. The circulatory system helps in carrying those nourishing elements to each cell. Endocrine glands are also responsible for the efficient functioning of the system.

## Yogic Poses

- **Cultural Asana:** These asanas produce physiological balance in different systems which work in the body. Eg: Shirshasana, Sarvangasana, Halasanaetc
- **Meditative Pose:** The aim of these asanas is to offer a comfortable posture for Pranayama and meditation. Eg: Padmasana, Siddhasana, Svastikasanaetc



## Digestive System

The principal organs involved in digestion are the stomach, small intestine, large intestine, pancreas, and liver. These organs are situated in the abdominal cavity.

### Yoga for Health of the Digestive System

Weak abdominal muscles cannot give massage to the digestive organ properly which leads to indigestion. This indigestion can lead to weak absorption, which affects the quality of nourishment supplied to the tissues of various organs.

Yogic poses not only ensure effective automatic massage but also, make special provisions for giving forced and vigorous internal massage to the abdominal organs. Strength and elasticity of muscles can be maintained with stretching and contracting exercises.

- **Stretching Exercises:** Bhujangasana, Shalabhasana, Dhanurasanaetc. These asanas act as a fine stretching exercise for the front abdominal muscles and contracting exercises for the back muscles.
- **Contracting Exercises:** Yoga Mudra,

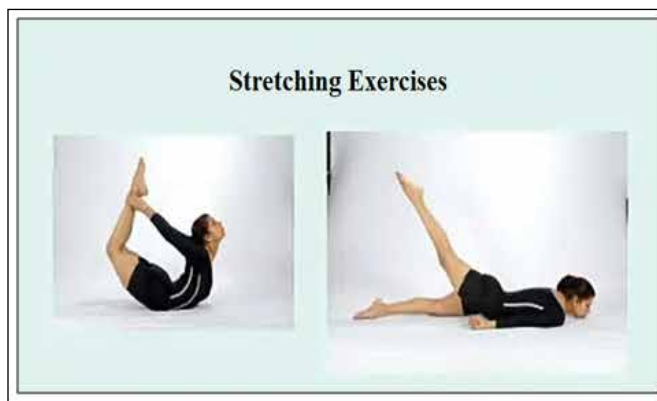
of the cardiovascular system. The principal organ of the circulatory system is the heart which contract and dilates, this helps in the circulation of blood throughout the body. The muscle of the heart is strong which can be made healthier with yogic exercise. Uddhiyana and Nauli help raise the diaphragm so high that it gives a good massage to the heart from below. Asanas like Bhujangasana, Shalabhasana, Dhanurasana, Sarvangasanaetc exert increased pressure on the heart. Veins are the weakest in blood circulation, they collect the blood from the whole body and supply it to the heart even against gravity. This heavy strain on the veins may lead to varicose veins problem.

### Yoga for Respiratory System

The health of the lungs depends upon the degree of elasticity and activity of air cells—asanas like Shalabhasana and Mayurasanahave great efficacy in this direction.

### Yoga for Endocrine Glands

The endocrine system includes the following glands:  
- the thyroid gland, pituitary glands, adrenal glands, testes & ovaries.



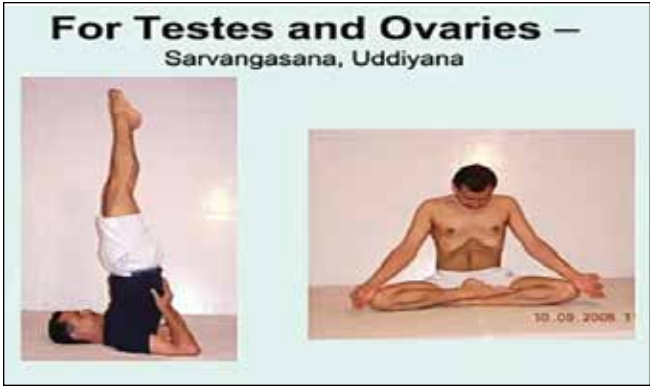
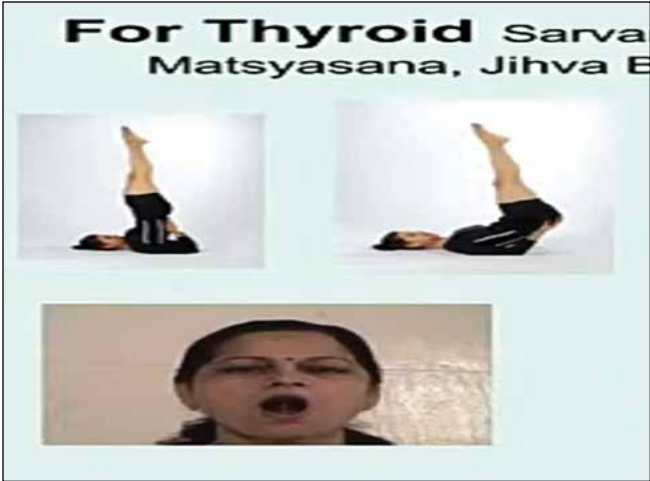
Paschimottanasana, Halasanaetc. These asanas require vigorous contraction of the abdominal muscles and stretching for the back muscles.

- **Vertical And Lateral Massage:** UddhiyanaBandha gives vertical massage to the abdominal organs. Nauli gives a lateral massage to the abdominal organs.

### Yoga for Cardiovascular System

The nourishment is provided to the tissues of the whole body by the blood. Blood is one of the main components

- **Thyroid Gland:** It maintains the health of the whole body, the Sarvangasana is considered to be important as it stimulates the functioning and health of this gland hence it is named Sarvang which means all the parts.
- **Pituitary Gland:** Shirshasana
- **Adrenal Gland:** Bhujangasana, Dhanurasana, Uddhiyana and Nauli
- **Testes & Ovaries:** Sarvangasana and Uddhiyana Bandha



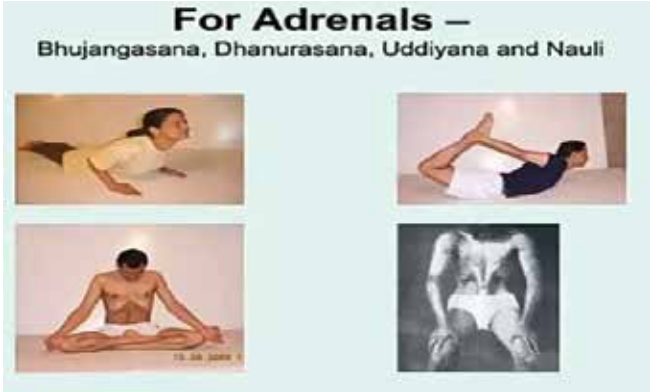
**Yoga for Excretory System**

The main component of the excretory or urinary system consists of pair of kidneys, pair of ureters, bladders, and urethra. Kidneys are situated in the abdomen.

Asanas supplemented with Nauli And Uddiyana Bandha are found to be good to preserve the health of the kidneys.

**Conclusion**

Yogic poses are capable of maintaining the health of human beings by effectively influencing the different systems of the body. The asana enables effective functioning of the organs and helps in maintaining



The image has been taken from "Hatha Yogic Practice for Health and Well Being" online webinar.



**Shri Vikram Singh**  
Director,  
Ministry of Ayush, Govt of India

# Confused Running to Confident Walking: Motivational Lessons

Shri Vikram Singh is a 2000-batch CPES cadre officer. An electrical engineer by profession, an ME in electrical engineering from Delhi College of Engineering, and a part-time MBA from FMS, Delhi University. Earlier, he was posted to the Northern Regional Electricity Board as Astd. Executive Engineer and Executive Engineer, Dy. Chief ( Engineering) in Central Electricity Regulatory Commission. Further, a Director in Central Electricity Authority is now posted with the Ministry of Ayush as a Director. He has also written a novel on the life of Bhagat Singh.

## Abstract

No man is truly great who is only great in his lifetime. The test of greatness is the page of history. Some of the great leaders of the country have taught such lessons which were not just relevant in their time but are also guiding all till now. The clarity in life creates confidence. Confidence helps take prudent risks and embrace the new challenges. Clarity of thought is needed to avoid confusion, helps in decision making, cherishing beautiful moments and avoiding crisis.

## Introductory Remarks

Director MDNIY shared that in life one may come across many people who influence them. These people are great because of their work. However, they are very simple and humble by nature. The teaching of these great people becomes the guiding light for many and helps to bring revolution. The inculcation of these teachings as a habit surely leads to success. Confidence doesn't come with answers. It comes only when people are ready to face all the questions and accept challenges in life. As cow do not give milk on its own, the individual have to extract it drop by drop with effort, just like that every person have to make an individual efforts.

**S**hri Vikram Singh gave a brief overview on the topic "Confused Running to Confident Walking: Motivational Lessons" as part of the Friday Weekly Webinar on 26<sup>th</sup> February, 2021.

## Story of Gautam Buddha and Bhikshu

Once a Bhikshu asked Budha, "You say that Nirvana (Liberation) belongs to everyone then why all the people don't get moksha?" Budha, replies go to the village and ask each and every person about what they want and make a list of the same. Bhikshu did the same and made a list of what people of village want. In that list different people wrote different desires but nobody has written about the "Moksha".

There should be clarity of thoughts, people should know what they want from their lives. One can never fail if there is a plan, the vision in the mind make the direction easy. One can either learn or blame but can't do both. Individual should work towards shifting this blame mindset towards a learning mindset. There should be a change of perspective in viewing each mistake or shortfall as a failure, and it should be reframed as a purposeful opportunity to learn and do better. One should approach each failure with purpose, identifying what went wrong and how it can be done better in the future. It is better to spend energy in finding

opportunities to improve instead of finding a person to blame.

As an example of learning and creating a revolution instead of blaming someone can be seen in life of Mahatma Gandhi. He already had a valid first-class ticket and refused to obey the orders, following which he was thrown out of the train at Pietermaritzburg station. Mahatma Gandhi didn't complain about this to anyone, however this incident influenced strongly his decision to fight racial discrimination in South Africa and later the freedom struggle in India.

Keeping the mind calm and focusing on the goals rather than on the excuses helps in bringing clarity of thoughts. It is important to take responsibility on own shoulder and know that the destiny is created from one's own hand.

## New Ideas

It is little hard to develop the habit that enable the person to come up with the great ideas. The extent to which a person incorporates these habits into the life ultimately determines the quality of the ideas. The more connection between the things, the better will be the ideas. It implies that the consumption of the quality and quantity of things plays a crucial factor in the ability to come up with a good idea. The consumption in terms of books, TV shows, articles, movies and the people one interacts with, and the experiences influence ideas. Consumption of junk will not create quality.

## Capture the Idea in Initial Phase Itself

Ideas come on its own, not necessarily when person wants it. One should recognize that when ideas constantly come to you, develop a habit of acknowledging and capturing them.

## Big Dreamer

Being a big dreamer doesn't mean to walk around with the head in the clouds. It means to seek a purpose of life and to become fulfilled in the process. People that get into the habit of dreaming big, will accomplish the goals because of the right mind-set. One should look at life with the perspective that anything that is possible can be achieved.

## Communicating Ideas Effectively and Clearly

Communication is an everyday process. The better the communication, there is more credibility with the clients, boss, and colleagues. According to the seven Cs, communication needs to be: clear, concise, concrete, correct, coherent, complete and courteous.

1. **Completeness:** In a complete message, the audience has everything they need to be informed and, if applicable, take action.
2. **Conciseness:** When concise in your communication, one sticks to the point and keep it brief.
3. **Coherent:** Communication is coherent when it is logical. All the points are connected and relevant to the main topic and the tone and flow of the text is consistent.
4. **Clarity:** Goal and message should be clear when writing or speaking, the purpose should be clear in communication with the others. If a person himself is not sure, then the audience won't be sure either.
5. **Concreteness:** When the message is concrete, then audience has a clear picture of what they are told. There are details (but not too many!), vivid facts, and there's laser-like focus. This makes a message solid.
6. **Courteous:** Courteous communication is friendly, open, and honest. There are no hidden insults or passive-aggressive tones. Reader's viewpoint should be kept in mind, and one should be empathetic to audience needs.
7. **Correctness:** Communication should be correct and should fit your audience. Correct communication is also error-free communication.

## Never Afraid to Fail

It's important to realize that in every action, there's always a chance of failure. Facing that chance, and embracing it, is not only courageous, it also gives a more rewarding life. Fear of failure will make a person uncomfortable to sets goals in life. Without goals there is no sure destination.

# How to find new ideas!

- **Attend a conference actively**
  - **Read a book**
- **Listen to Nature: Make tress Ur Friends**
- **Converse with your parents/ children/siblings**
- **Participate in official meetings Actively**
  - **Watch television**
  - **Listen to radio**
- **Watch Moon/ STARS/Clouds**

**Pen any new thing you come across**

## Conclusion

Once the individual has the good principles in life then success comes on its own. Instead of running for

success, one should be adopting good habits, good principles and values in life; then success will comes on its own. ■



The image has been taken from "Confused Running to Confident Walking : Motivational Lessons" online webinar



**Prof. Sushim Dubey**  
Department of Philosophy,  
Nav Nalanda Mahavihara Nalanda,  
Bihar

# Philosophy of Yoga, Health and Ayurveda

Dr. Sushim Dubey has worked as Programme Officer in Indian Council of Philosophical Research (Ministry of Education, Government of India), New Delhi. He has for his credit publication of 14 books, 41 research papers, 10 Radio Talks on Yoga and is Managing Editor of ICPR (Ministry of Education)-Hindi-Sanskrit Journal Darshanam. Dr. Dubey has received best book award on his book Kautilya Arthashastra from ABDP. Dr. Dubey has been also figured in "INDIA TODAY" national magazine in 2008, has been member of Academic Council, Academic Committee and Advisory Board of many prestigious Universities in India.

## Abstract

A healthy mind resides in a healthy body. Concept of Health is described in Yoga and Ayurveda both. Philosophy studies perception which puts all other forms of knowledge on the edge, because every science strongly depends on it. Yogic way of life emphasis on the four aspects of Ahara (food), Vihara (recreation), Acara (relation and routines), Vichara (thought process) and Vyavahara.

## Introductory Remarks

Director MDNIY explained in detail about the Yoga philosophy. We cannot develop the science, we cannot develop the technology; without the technology there is no appliances. Therefore philosophy is the foundation. Many ancient literature including Vedas, Upanishads, shad darshanas, agamas, puranas, mahakavyas all these Indian philosophies have their own concept. If one understands the entire Indian tradition and knowledge bank it will become very easy to understand the modern practices of Yoga.

**D**r. Sushim Dubey discussed the Philosophy of Yoga and Ayurveda and the similarities in both Yoga and Ayurveda on 5<sup>th</sup> March, 2021.

In Sanskrit, philosophy is referred to as 'Darshana'. The Sanskrit word 'Darshana' has its root in the word 'drs' that means 'to see', 'to look' or 'to view'. "Seeing" or "viewing" the reality and the facts of experience forms the basis of philosophy. Senses, mind and even consciousness are involved in this 'seeing'. "Seeing" also encompasses "contemplation". Seeing is not simply a sensory activity. 'Seeing' may primarily be a

perceptual observation. But it may also concern the conceptual knowledge or an intuitional flash. Thus 'Darshana' suggests vision.

In other words, 'Darshana' is a whole view revealed to the inner self, what we term as the soul or the spirit or the inner being. Philosophy or 'Darshana' is concerned with the vision of 'truth and reality'.

नृ ; रसुसुभ्रन' क्ते~

DRISHYATE- ANEN ITI DARSHANAM.

What enables to view things the way they must be viewed is called "DARSHAN" (philosophy).

## Philosophy "the mother of all the sciences"

Philosophy studies everything, from physics to mathematics, to ethics, law and politics, to psychology, sociology, and language. More importantly, philosophy studies perception which puts all other forms of knowledge on the edge, because every science strongly depends on it. Philosophy is the mother of all knowledge because it was the starting point of most of the sciences that people study today, and if it wasn't

for those ancient philosophers (and a lot of modern philosophers) then nothing would've been as it is today.

## Health (Swasthya)

In Sanskrit the word for health is 'swasthya', which has a profound meaning. It is made of two Sanskrit root words – 'swa' meaning the Self and 'stha' meaning centered. So, swasthya can be roughly translated as 'centered in one's own Self'. It is very close to the meaning of Yoga.

## Yoga

The word 'Yoga' is derived from the Sanskrit root 'Yuj', meaning 'to join' or 'to yoke' or 'to unite'. As per Yogic scriptures the practice of Yoga leads to the union of individual consciousness with that of the Universal Consciousness.

The definition of Yoga as per Patanjali Yog Sutras by sage Patanjali that is "chitta-vritti-nirodha" (योगश्चित्तवृत्तिनिरोध) in second Verse of Samadhi pada.

In the Yoga Sutras, Patanjali refers to Yoga as chitta-vritti-nirodha. In other words, when the fluctuations of the mind have been quieted, individual reach an ultimate state called kaivalya, or "aloneness." In this state, you are able to perceive the divine within.

Sage Patanjali synthesized and organized knowledge about Yoga and wrote Pantanjali Yog Sutras contain 196 Sutras which taught about what is Yoga, various Chitta Bhumis, different obstacles in the path of Yoga, how to overcome those obstacles and ways to attain kaivalya.

## Ayurveda

The word Ayurveda comes from the word "ayu" meaning life and the word "Veda" meaning to know. Ayurveda means the science of life.

## Base of Ayurveda and Yoga

25 tattvas explained in Samkhya Philosophy are the base of both Ayurveda and Yoga. These 25 tattvas are 5 mahabhutas, 5 karmenindriyas, 5 jnanaindriyas, 5 tanmatra, mann, budhi, ahamkaraparakarti and Purusha.

Ayurveda as an ancient science of life has a long history. In Ayurveda the Vaidya checks the nadi of the patient and observe the imbalance in dosha based

on that they judge whether the patient is sick or suffering from any disease. Vaidya means a person of profound knowledge. This is just a small explanation of how basically Ayurveda therapy works. The concept of Prakriti or individual nature has a central role in Ayurveda therapeutics.

## Significance of Bhramcharya in Ayurveda and Yoga

Brahmacharya is taken literally from two components: Brahma, (shortened from brahman), the absolute, eternal, supreme God-head. (As opposed to Brahma, the deity in the Hindu triad responsible for creation). Charya, which means "to follow". This is often translated as activity, mode of behaviour, a "virtuous" way of life. So, the word brahmacharya indicates a lifestyle adopted to enable one to attain the ultimate reality.

Acharya Charaka has specified brahmacharya among three sub pillars which assists in healthy living being. Brahmacharya leads to conservation of shukradhatu which is essence of ahara. This shukradhatu is responsible for bala, virya, yash, dhairya, preeti. Development of these qualities assists higher faculty buddhi or pragya not to indulge in pragyaparadh leading to correct decisionary power and patience. Healthy state of mind is achieved with this brahmacharya.

In Yoga Philosophy Bhramcharya comes under the Yama (Social etiquettes) of Ashtanga Yoga. The word Brahmacharya actually translates as 'behaviour which leads to Brahman'. Brahman is thought of as 'the creator' in Hinduism and in Yogic terms, behaviour is which leads individual towards 'the divine' or 'higher power'.

Regarding Brahmacharya as 'right use of energy' leads individual to consider how they actually use and direct our energy.

## Ayurveda Yoga and Yogic Lifestyle

Yogic way of life emphasis on the four aspects of Ahara (food), Vihara (recreation), Acara (relation and routines), Vichara (thought process) and Vyavahara.

Yoga emphasizes on a balanced diet and moderation in diet. Individual gets energy from the food they eat, so the right quantity, quality, attitude at the time of eating all that matters. In Ayurveda as foremost pillar among the

three pillars of life (Trayopstambha viz. Ahara, Nidra and Bhramcharya). When body is supported by the Trayopstambha, it is endowed by growth, strength and complexion. Ayurveda insists that Ahara should be chosen in accordance to the Prakriti or constitution of individual. The time, season and place for the food intake are also important. Healthy body by intake of proper Ahara leads to happiness, observance of truth & brahmacharya and ultimately to salvation.

In Yoga Philosophy, Vihar is an activity or hobby that involves complete participation. The description about Dinacharya, Ritucharya, Sadvrta and Nidra in Ayurveda, depicts the importance of a healthy regimen in the prevention and management of many diseases.

Achara in Yoga is described as the daily routine / discipline which include the practice of asana, pranayama, etc. In Ayurveda, one of the major methods of presentation of positive health has been described i.e. Ramayana. AcharaRasayana signifies the physical and mental conducts of a man and it has been designated as a Rasayana, avitalizer agent for entire span of life.

Positive thinking is called Vichara (Lifestyle conducts) in Yoga. Ayurveda Treatment, stresses upon the

distressing of the mind, modes of relaxation and the ways to solve the solvable problems and to live harmoniously with the non-solvable issues.

Vyavahara (Behaviour or actions) is the result of ahara, vihara, achara and vichara. According to Yogic philosophy individual's actions should be right. People should not be indulged in wrong activities. Their behaviour towards others should be appropriate. According to Ayurveda, there are certain things that should be followed for better psychological health. One should not deviate from generally approved principles no one should break any code of conduct.

## Conclusion

Philosophy was the starting point of most of the sciences that we study today that's why it is called mother of all sciences. Both Yoga and Ayurveda is based on 25 tattvas discussed in Samkhya Philosophy. As per Ayurveda, health is a natural state and a healthy body is in capable of maintaining a state of one disease and healing another. Body heals holistically, and the processes that create each disease, affect the body as a whole. ■



The image has been taken from "Philosophy of Yoga, Health and Ayurveda" online webinar





**Ms. N. Kalyani**  
Environmental Journalist

# Moving Towards a Holistic Approach

Ms. N. Kalyani is an Environmental journalist. She has written on environmental issues and also social and cultural issues for various national newspapers, magazines, journals, and international publications as well. She has also done programs for All India Radio. She takes a keen interest in studying the environment in a holistic way – including elements of spirituality and economics, technology and entrepreneurship, traditional practices and sustainability, fashion and adventure, art and architecture, literature, and films. The composed poetry and a collection of her poems have been published as a book “Mysteries & Musings” (2011). Now she is currently working on a book bringing together stories about the Environment. She is also an amateur photographer and has won various awards.

## Abstract

Physical Yoga seeks to bring body, mind, and soul together to harness our full potential and energy. Through Yoga practices like meditation, we strive to bring excellence into our lives and activities. A holistic approach to environmental conservation through greater awareness brings ecology, conservation, and spirituality together for promoting sustainability. This is what education in the environment can achieve as environment conservation depends on awareness and sensitization of us humans. Compassion, kindness, generosity, truth, and non-violence have their root in spirituality.

## Introductory Remarks

Director MDNIY highlighted that environment plays an important role in a person’s life. Mother nature is the first teacher. It gives food, shelter, and livelihood. Taking care of it is the primal duty to be followed by any person. However, the greed of mankind has led to the destruction of the environment in terms of global warming, uneven weather change, etc., and this brings us into consideration to take steps towards the protection of the environment. This can be achieved by having a holistic approach, and environmental education. Yoga also plays a vital role as it helps to unite. This union will help in the protection of nature. There is a realization that a healthy ecosystem allows for the pure and clean flow of the rivers, maintenance of the hydrological cycle, and maintenance of the equilibrium

of the clean forest and the food chain. This knowledge and awareness have helped in appreciating the issue. It acts as a chain reaction like a virtuous circle, every bit of knowledge creates understanding and helps to appreciate value, respect, love, and protect the environment and immediate natural surroundings.

**A**n elaborative and informative lecture was delivered by Ms. N. Kalyani, wherein she highlighted and discussed about “Moving towards a Holistic Approach: Environmental Education, Spirituality and Yoga” on 12<sup>th</sup> March 2021.

## The essence of the Environment

Loving and protecting the environment is more than sentiments and it is greater than the legislation. People who are been made aware, and those who were

sensitized to the issue have begun to love and protect the environment. There are many examples that can be seen when considering the empowerment of people. In this, along with the single person, the community also plays an important role.

In the 1970s, there was the Chipku movement, which was in the state of Uttarakhand, near Chamoli, it was started by a common person from the community, Shri Chandi Prasad Bhatt. It was the movement to protect the tree by hugging the trees. It was one of the steps taken by the community to avoid the unnecessary cutting down of the tree. It was one of the successful movements during that time. Another example of the woman, Amrita Devi Ji of the Bishnoi community of Rajasthan came forward to protect the trees.

Even during the discussion of the environmental issue, there are other issues as well in fronts such as the human values, respect, care, love, and compassion which are the virtue and values of the human heart which come into play. There are many factors that



influence the environment and being influenced by the environment makes the environment a potent subject.

In the holistic approach, everything comes together whether people, society, or community. Example: climate change: earlier it was the mindset that climate change takes place in different regions or these climatic changes were thought of as nothing but some

prophecy of the future. However, what was discovered is that it is knocking at everyone's door, in terms of unseasonal rain, flooding, etc. as climate change was the underlying root cause. One of the factors which affect climate change is global warming which is due to manmade factors and human activities such as burning fossils, deforestation, etc

### Traditional Practices in the Holistic health

The tribes of the remote and inaccessible areas perfectly live in harmony with the natural surrounding. The rural tribes which are better known as the snake charmers have the knowledge of leaves, and barks which are helpful in the snake or scorpion bites. These traditional practices came to be very helpful for society.

The knowledge and the documentation of secret plants and animals by Dr. Lalita Krishna are being compiled which is very useful for the health of any individual and society. For instance, the Neem tree, the knowledge and its health benefits of it will create an awareness to protect the trees. When someone knows the importance of the Neem tree that purifies the air around, then it will surely create sensitivity in the person to protect it. So one can say that knowledge, sensitivity, and awareness are the three aspects that lead to appreciation, respect, love, and protection towards nature. All these are spiritual aspect and cherish human value and shows the interconnectedness in different aspects. A beautiful blending of the holistic approaches of Yoga, spirituality, environmental education, all coming together on the

### Human Habilitation

House sparrow is one of the species that lived along with human habilitation. However, the house sparrow species are falling but it can be seen during the lockdown, as there were restrictions due to the pandemic that these and many other species raised in number which shows that human interference is one of the factors for environmental imbalance.

## The Interconnectedness between Ecology, Peace, and Spirituality

In India, it is accustomed to chanting Om Shanti, three times, it is itself enough to bring peace in different aspects of life. The first peace should be for the individual and for the mind. The one who is not at the peace cannot bring peace to the world. This is the spiritual dimension. The second peace is for everyone irrespective of religion, caste, or creed. Peace with biodiversity, racial diversity, and religion is fundamental. The third is peace with nature including animals, rivers, oceans, soils, etc., this is the holistic approach.

## Conclusion

Human intervention can lead to adverse effects on the environment, hence it is the responsibility of humans only, to maintain the equilibrium and take steps to protect nature. This can be done by following the holistic approach of providing knowledge and awareness of the environment to the people. This may include providing benefits to the species, and animals. Keeping the religious attitude toward nature which will also bring the feeling of protection. These will help in bringing harmony between humans and nature and it will automatically bring a healthy environment and human wellbeing. ■



*The image has been taken from "Moving Towards a Holistic Approach: Environmental Education, Spirituality and Yoga" online webinar*



**Mr. Vishal Duggal**  
Senior Consulting Editor

# Role of Cultural Resilience to Fight against the Pandemic

Shri. Vishal Duggal possesses a rich experience of over two decades across various facets of journalism. He launched and edited Sahara Time, a broadsheet weekly in English, which covered a wide spectrum of news and views. He was also a senior editor with Exchange4media, handling the editorial production of their real estate magazine 'Realty Plus', and prior to that Consulting Editor with 'Geopolitics', a magazine on defence and strategic affairs. Presently, he is working as Editorial Consultant, rendering content writing, editing and translation services, besides managing his own venture [www.newsorbiter.com](http://www.newsorbiter.com), a news website covering subjects such as business, economy, real estate, healthcare, and technology.

## Abstract

The time-tested Indian cultural traits of restraint, discipline, reliance on nature, balance and harmony in our daily habits have helped us survive the gloom emanating out of the long spell of the pandemic. Recent studies on COVID-19 have highlighted the role of social support in reducing anxiety and stress.

## Introductory Remarks

Director MDNIY mentioned that the time tested Indian cultural traits of discipline, reliance on nature has helped everyone to survive this long spell of pandemic. Yoga has played a crucial role in pandemic in maintaining the health of the individuals. The COVID-19 pandemic had a colossal impact across the world, turning everything topsy-turvy, reminding of the harsh reality that everything can come to a standstill – silver jets flying over gleaming cities can stop and soaring markets and industrial empires could come to a grinding halt but should human systems and society seem be so fragile in handling crisis and coping with adversities even if of mammoth proportions.

Here the only trait that can help individual to sustain the world is our ability to overcome challenging times by drawing upon inner strength. In other words, it is the resilience or ability to respond to the worst crises that

alone can come to rescue. Fortunately, resilience is the distinguishing hallmark of the Indian culture dating back to more than 5000 years.

**S**hri Vishal Duggal deliberated upon the Indian cultural traits that have helped us in surviving the Pandemic on 19<sup>th</sup> March, 2021.

A resilient person is someone who is able to adapt to change and tends to bounce back after any crises or hardship. Recent studies on COVID-19 have highlighted the role of social support in reducing anxiety and stress. In addition to social support, there could also be several individual-level resources, such as resilience that could help individuals face adversity. Resilience helps to strengthen our coping mechanism and reduce the possibility of developing psychiatric morbidities such as anxiety, stress, and depressive symptoms.

## Cultural Resilience and Unprecedented Challenges

The time-tested Indian cultural traits of restraint, discipline, adaptability, reliance on nature, balance and harmony in our daily habits have helped us survive the gloom, emanating out of the long spell of the pandemic. If we had lacked this resilience, we would have succumbed to the stress and psychological issues caused by months and months of lockdown and now another threat of the same restrictive period in the wake of recent spurt in COVID-19 cases. We need to embrace the same resilience again rather than falling back to unhealthy escape routes such as liquor or substance abuse.

### Resilience: A part of Indian Culture

People have an inherent ability to work through adversity. We have a closely-knit society that is nurtured by a strong network of positive relationship within our families, relations, friends and neighbours. That's why; we can cope with highly stressful environments. The key here is to develop a mature mind that has the ability to regulate emotion, thanks to a balanced perspective gained from life's experiences. Corona is a crisis of unprecedented magnitude but resilience gives us the ability to adapt to this largely unknown threat. We can face it without going through trauma, grief, frustration and pain, and this makes us strong both physically and mentally.

### The Enduring Culture of India

Nothing escapes the merciless onslaughts inflicted by time on all things that move or remain inert. But the uniqueness of India lies in the astounding fact that the spirit of the country is eternal and invincible. In the long march of centuries, many civilizations rose and fell flourishing for a time and then just passing into oblivion. As the great poet of undivided Hindustan, Mohammad Iqbal, writes in his legendary verse, "Saare Jahan se Acha: Yunan-o-Misr-o-Roma Sab Mit Gaye Jahan Se, Ab Tak Magarhai Baki Naam-o-Nishan Hamara".

The Greek, Roman, the Egyptian civilizations met a similar fate, leaving only ruins behind to serve as tragic

reminders of their former glory. Why Indian civilization remained unscathed by the vagaries of time is a mystery that defies any plausible answer. Even wave after wave of invaders who descended on the country, founded empires and ruled over different parts of the country as kings and emperors could not subdue or subjugate the indomitable soul of Bharatvarsh. Indian civilization and culture survive in its pristine form as one of the world's most ancient ones and today it marches proudly as the most vibrant republic and largest democracy of the world, an influential nation in South Asia and an emerging economic superpower.

### Cultural Diversity

India's multi-coloured and multi-layered ethos is rooted in its ethnic, cultural and religious diversity held together by an undercurrent of unity. No other country in the world offers such an awesome, creative burst of cultures and religions, races and tongues. To know to understand and to discover the wonder that is India, people need to come innumerable times to this enchanting land. As the celebrated American writer Mark Twain succinctly describes, India is one Country "all men long to see" and having seen it once would not give up that glimpse for all the wonders of the world.

### An Ancient Civilization

Amongst the world's oldest, richest and most diverse cultures, every nuance of the Indian sage presents on a Colossal, larger-than-life scale, comparable only with the great Himalayas that overshadow it. India represents an amazing confluence of different creeds, religions, faiths and belief systems. All the major religions of the World-Hinduism, Sikhism, Buddhism, Jainism, Islam and Christianity, including their sects are found and practised in India with full freedom. India adheres to and cherishes the ideal of Sarva Dharma Samabhava (equal respect for all belief systems) believes in Vasudhaiva Kutumbakam (The world is one family).

It was almost five thousand years ago that the inhabitants of the Indus River Valley developed an urban culture based on commerce and sustained by agricultural trade. Yet, for times immemorial, India has

remained a meeting ground between the East and the West. Persians, Greeks, Chinese nomads, Arab, Portuguese, British and many others the list of invaders who ruled India is big. Yet India had always remained simply too great. Too complicated and too culturally subtle, to let anyone empire dominate it for long. There are deep cultural continuities that tie its people together in good times as well as bad times.

### Confluence of religions

Though India has a secular political structure, religion is central to Indian Culture. Its practise is abundantly visible in the daily lives of the people, virtually in every aspect of human life in the country. Hinduism is the dominant faith, serving about 82 percent of the population. Hinduism however is far from homogenous religion; it is a way of life. There are followers of other religions too such as Muslims, Christians, Sikhs, Buddhists, Jains and Parsis. In Addition, more than 300 local tribes constitute 8% of the Indian Population. All Major festivals are celebrated here. Festivals and fairs related to different faiths are celebrated with fanfare all over the country. They are woven together in a rich and eye-catching tapestry of colourful splendour.

### India, a Vishva Guru

India is a vast treasure house of knowledge and wisdom, which has qualified her to don the mantle of the global teacher and guide. The highest reaches of wisdom and fathomless depths of knowledge attained by India's Intelligentsiasince the dawn of civilization are enshrined in the Vedas composed in the 12th century B.C. and regarded as the World's oldest scriptures. Vedic culture and Vedic way of life have struck deep roots in India and are followed by people even today. Apart from the Vedas, other important scriptures composed during vedic times include the Upanishads (Known for their enlightening commentaries on the Vedas), the shrutis and the Smritis (Storehouse of choicest snippets of heard and remembered wisdom and knowledge).

A birthplace of great epics Mahabharata and Ramayana India has a veritable wealth of literature designed not only to entertain but also to inculcate moral values; the

fascinating stories of the Panchatantra may be cited as an exquisite example of enacting this dual role.

### Spiritual Inclination

In addition to indulging in material pursuits, India indulges with no less zeal and fervour in spiritual pursuits if only to strike a balance between the needs of the body and of the soul. If you are inclined towards matters of the spirit, there is an abundance of places known as ashrams (hermitages) located among spots of scenic beauty in the hills. In fact, India has always been a votary of peace and non-violence as exemplified by the teachings of Buddha and Mahavira in the past and of Mahatma Gandhi in the Present.



### Teachings of Indian Culture

Change is inevitable, what's important is how fast we adapt to it. Instead of succumbing to the COVID challenge, we must learn to live with it and don't let it break our equilibrium. When we are confronted with the undeniable threat of the pandemic, our response should not be to run away from it but fight it with physical immunity as well as psychological and mental toughness.

"Anicca" the Pali word for impermanence is the core of Buddhism. The teachings of Buddhism revolve around the transitory nature of this world so, we should be aware that corona too will pass.

## Strength of our Indigenous Culture

We also need a lot to learn from our indigenous peoples. Thanks to their traditional knowledge and living in close proximity with Nature, they are alive to the fact that the degradation of the environment unleashes disease and disaster. Indigenous people play a unique and valuable role in sustainably managing a significant share of the world's lands and ecosystems. Safeguarding nature is a fundamental part of their cultures. They can teach us much about how to restore harmony in our relationship with nature and reduce the risk of future pandemics.

The outbreak of coronavirus shows us that we need to change the way we deal with nature. We also need to fall back upon Sattvic way of food consumption. We also need to adopt more sustainable agricultural practices, without encroaching on forests and other sources of biodiversity.

## Conclusion

It is important to implement preventive and therapeutic interventions based on our age-old cultural traditions, community networks and relationship to address the adverse effects of pandemic like situations. Indian scriptures have always discouraged mindless pursuit of material possessions. The pandemic too has taught us to live with limited resources the essential needs of life. A minimalistic lifestyle in harmony with nature should be our mantra to survive all future catastrophes. The world as a whole need to take the pursuit of sustainable development goals in right earnest to ensure our very survival and build a better, brighter post COVID-19 world. ■



*The image has been taken from "Role of Cultural Resilience to Fight against the Pandemic" online webinar*



**Ms. Gunjan Pathak**  
Senior Dietician  
R.S. Grover Hospital, Delhi

# Nutrition for the Vulnerable Group

Ms. Gunjan Pathak is working as a senior dietician at R.S. Grover Hospital, Delhi. She is a guest faculty at All India Institute of Occult Science. She has a comprehensive work experience of more than 15 years in the areas of Nutrition, Dietetics, Yoga, Naturopathy, with an additional qualification of being grand masters in Reiki, Crystal Healing, &



**Ms. Kirti Chugh**  
Nutritional Consultant  
Abbott Pharmaceuticals

Ms. Kirti Chugh is working as a lead dietician and handling team of 22 Dieticians in Abbott Pharmaceuticals. She has also been associated with BLK Super specialty Hospital, Delhi for a year. She has provided counselling regarding diabetes, Pregnancy, Lactation, Heart-Care, Cancer, Liver Cirrhosis and has attended various health check-up camps & counselled patients regarding diet in diabetes, heart diseases.

## Abstract

Nutritional needs of women are distinct throughout their lives, especially before, during, and after pregnancy and breastfeeding, when women are at their most vulnerable stage. Assuring women to have good diet, adequate services and care is fundamental to their survival and well-being. Adequate nutrition of the mother during lactation is important since during the first few months of life, the infant derives all his nutrition from mother's milk. She needs extra nutrients to meet the baby's needs in addition to her own requirements.

## Introductory Remarks

Director MDNIY deliberated upon how diet plays an important role in maintaining health. In Yoga there is concept of Ahara, Vihara and Nidra which plays an important role in maintaining a person's health. Yuktahara and Mitahara are important to maintain the dietary requirements of person progressing in Yoga Sadhana. Without controlling the food intake, Yoga Sadhana will not be fruitful.

An elaborative and informative lecture was delivered by Ms. Gunjan Pathak and Ms. Kirti Chugh wherein they highlighted and discussed

about "Nutrition for the Vulnerable Group" on 26<sup>th</sup> March 2021.

India contributes to one-fifth the global burden of absolute maternal deaths, however, it has experienced an estimated 4.7% annual decline in maternal mortality ratio (MMR), and 3.5% annual increase in skilled birth attendance since 1990. Ninety-four percent (94%) of all maternal deaths occur in low and lower middle-income countries.

In 2005, a woman's lifetime risk of maternal death in India was estimated to be 1 in 70. Similarly, the maternal mortality ratio (MMR; number of maternal



deaths per 100,000 live births) in India was 450. In 2010, approximately one-quarter of all pregnancy- and delivery-related maternal deaths worldwide occur in India. Statistics showed that up until 2010, more than half a million women—most of them living in developing countries—dies from pregnancy- or childbirth-related complications every year, and about a quarter of these “maternal” deaths occurred in India. India showed a steady decline in maternal mortality, from 254 in every 100,000 live births in 2004-06 to 178 in every 100,000 live births in 2010-12. In 2014, India was recognized to have contributed one-fifth of the global burden of absolute maternal deaths, while experiencing an estimated 4.7% decline in its Maternal Mortality Ratio which stood at 174 per 100,000 live births in India.

According to the Office of the Registrar General, the ratio has declined from 130 in 2014-2016 to 122 in 2015-17, registering a 6.15 per cent reduction since the last survey figures of 2014-2016. India’s present MMR is below the Millennium Development Goal (MDG) target and puts the country on track to achieve the Sustainable Development Goal (SDG) target of an MMR below 70 by 2030.

### **Antenatal Care**

Antenatal care is the routine health check-up, healthy pregnancy without symptoms (Screening) in order to diagnose disease or complications. Women who start antenatal care early can plan for a comfortable pregnancy and delivery of a healthy baby. WHO recommends pregnant women should receive at least eight antenatal visits to spot and treat problems. Antenatal care is important for mother and fetus growth.

### **Exercise Work and Rest**

Exercise and work will help to keep best physical condition and would contribute to overall muscle tone and good posture. Especially, in the later months it is important that the pregnant women should get enough rest. It should be around 2 hours during the day time and good 8 hours during the night time.

### **Teeth, Hair, Skin and Cloths**

During Pregnancy women body goes through some complex hormonal changes that may affect the physical appearance. The skin may turn dark, complexion changes and after delivery hair loss is expected and some women may have dental problems,

if so, consultation with dentist is recommended as a preventive measure Brushing teeth twice a day would keep the gums healthy and strong and also wearing loose and comfortable clean cloths are recommended.

### **Morning Sickness, Heart Burns, Constipation, Swelling Ankles and Leg Cramps**

In the second month of pregnancy or even before, pregnant women may experience early morning nausea or vomiting, it’s natural and usually disappears by itself. This can be prevented by small amount of food, drinking plenty of water and fluids. The added weight of your baby during second half of pregnancy increases pressure on veins of leg which causes swelling in ankles. Heart burn starts during the later half of pregnancy, feeling burning sensation in the stomach often rises up to throat. Avoiding fried items, heavy meals and fatty foods will reduce the burning sensation considerably.

### **Diet during trimester**

By the end of the first month, the fetus is about 1/4 inch long – smaller than a grain of rice and weight is less than 30 Gms in medical term the embryo’s facial feature start is to develop as the heart during the second month baby begins to form the toes, fingers, wrist, ankles etc. but remain sealed and by 7 weeks baby is around 2.5 cm long. In the third month the fetus is fully formed and is around 8 cm.

### **Balanced Diet**

Healthy diet also consists of plenty of water, yogurt, bananas, lentils etc. A Pregnant women should aim for an intake of 2,000 calories per day as a baby’s need is quite small. Eat three meals a day, plus one or two small snacks. Fiber should be around 2-30 grams. Mother should include calcium rich food. Milk, yogurt, cheese, sardine, tofu, leafy vegetables, green broccoli etc. Folic acid intake should be around 400-600 mcg. Rich diet orange, nuts, cauliflower, beets, green leafy vegetables, and kidney beans. Iodine intake should be between 250 to 1000 mcg but not more, it is the most important mineral for a baby’s preventable cause of intellectual disability related to brain, heart rate and thyroid.

### **2nd Trimester**

The 2nd trimester contains 4th, 5th, and 6th Month. The growth of the baby during 4th month is about 1 to 2

Kgs. The Uterus increases and relieves the pressure on the bladder. The growth and weight of the baby during 5th month varies from 2 to 3 Kgs. During 6th month the uterus will be above the tummy button. The mother may feel a heel or elbow as a lump after pressing of the abdomen. Paneer, cooked sea food, beans whole grains and oat meals. Leafy Vegetables, lean meat, vegetables and lentils should be consumed during the 2nd trimester for proper of the baby growth. Vitamin-D should be consumed by the mother for proper development of bones and teeth around 600UI a day, Ultra- Violet exposed and enriched mushroom, sunlight, cheese, egg yolk, beef lever. Omega 3 Fatty acid 1.4 g a day. Rich almonds, sardine fish, chia seeds, walnuts and to prevent dehydration 8 – 10 glasses of water including coconut water will help in proper and healthy development of the baby.

### 3rd Trimester

Baby continues to grow, so will the uterus in the 7th month. Breast increases in size, mothers may feel “Braxton Hicks Contractions”. In the seventh month, baby is about 35 cm and moves vigorously. In Eighth month baby is ready for birth and about 4 cm in length. In the ninth month baby gains 200 to 250 gms. Baby may descended in to the pelvis getting ready to birth. During this trimester women will not be conversant with the main food in terms of protein, carbs, fiber, vitamin and mineral. Pregnant women should be explained for regular intake of food which ensures regular supply

of nutrient. Mother should look after herself and eat regular well-balanced meal. Notable point is to have high protein which should include portion of meat or fish, eggs lentils, green leafy vegetable etc. Soaked dry fruits, almonds, raisins, walnuts, every day early morning with juices/milk as an alternative soaked ground nuts can be taken. Weight of pregnant women should be expected to gain by 10 to 12 Kg in totality. During Pregnancy women should not make any deliberate attempt to lose weight.

### Nutrition during Lactation

Adequate nutrition of the mother during lactation is important since during the first few months of life, the infant derives all his nutrition from mother’s milk. Mothers needs extra nutrients to meet the baby’s needs in addition to mothers own requirements. Breast milk protects against allergies, sickness, and obesity. It protects against diseases, like diabetes and cancer. It protects against infections, like ear infections.

### Conclusion

Pregnant Women should be kept stress free and should be provided with an environment of happiness and cheerfulness. Unnecessary travelling should be avoided during pregnancy. Listening to soft music, reading books (especially for child in Womb) is very effective. Regular walk at even places and balanced diet helps in maintaining mother health. ■



The image has been taken from “Nutrition for the Vulnerable Group” online webinar





**Shri Isht Deo Sankrityaayan**  
Linguist, Author and Journalist

# Yoga for Wellness and Social Harmony

Shri Isht Deo Sankrityaayan is currently working with IIT, Roorkee as a project associate. He has worked in Dainik Jagran, Amar Ujala, Jagran Sakhi, and Punarnava magazines. He played a key role in research and editing for Deendayal Upadhyaya Sampurna Wangmaya (15 Volumes), which was released by the Hon'ble Prime Minister on 9th October 2016. He has also worked for the aforesaid anthology's English version i.e., complete research and editing work on Deendayal Upadhyaya. He edited both Hindi and English versions of the research journal Manthan and translated several books from English to Hindi.

## Abstract

This lecture will delve into the inherent characteristic of Yoga to promote universal well-being and social harmony. The overall objective of Yoga is to unify, synthesise or integrate body, mind, and soul. 'Yogashchittavrittinirodhah'. The term 'nirodhah' does neither mean 'negation', nor does it mean 'suppression'. 'chittavritti' normally can be understood as 'thoughts and emotions or 'the state of mind' which cannot be negated or suppressed. All that can be done through harmonious channelization of our 'state of mind'. It is the lack of this channelization that causes a lot of destruction in individual and social life. On the other hand, when this force gets channelized, it becomes the cause and ground for creativity in the universe. This forms the very base of inner peace and social harmony.

## Introductory Remarks

Director MDNIY described the importance of harmony which begins with the microcosm from cell to tissues, tissues to organs, organs to the organ system, organ system to the physical body, and then to universal consciousness. Therefore, harmony is part of healthy living principles and Yoga is one of the best ways for it. Yoga comes from the root word "Yuj" which means to unite. The clashes which can be seen in society are due to abhaava. When one person does not take responsibility then others also start to follow the same path. People lack patience with them. The abhava or absence is not of food, money, or facility, but the absence is of patience. This can be fulfilled by Yoga, as it gives satisfaction to the person. When starting to practice it further stabilizes the social structures.

An informative session was delivered by Shri Isht Deo Sankrityaayan who shed light on the importance of "Yoga for Wellness and Social Harmony" as a part of the Friday Weekly Webinar on 2<sup>nd</sup> April 2021.

## Eight limbs of Yoga

Patanjali gives the definition of Yoga as "Yogaschittavrittinirodha", here nirodha means mastery. Western culture gives the definition of society as "Set of People", whereas India gives the definition as "Sam DhanAja" (Samyakraupena), a society in which created from within.

Patanjali gave the 8th path method which is called the Patanjali Ashtanga Marg. The eight limbs of Yoga include Yama (Self-restraint), Niyama (Universal laws), Asana (Sacred posture), Pranayama (Regulation of breath), Pratyahara (Restraint of senses), Dharana

(Concentration), Dhayana (Meditation), Samadhi (State of being absorbed in a source of life).

Note: Yama, Niyama, Asana, Pranayama, Pratyahara all together are called as the Bahiranga Yoga. Dharana, Dhyana & Samadhi are called as the Antaranga Yoga. Bahiranga Yoga is considered as the hatha Yoga whereas the Antaranga Yoga is considered as the raja Yoga.

### Yama (Social Conduct)

Yamas refers to the social conduct and, it includes:  
- ahimsa: non-violence (from thoughts, speaking and action), satya: truthfulness, asteya: not lying, bhramacharya: celibacy, aprigraha: non-possession.

### Niyama (Individual Conduct)

Niyamas are the individual conduct, it includes - cleanliness, santosh: contentment, tapa: hard work, swadhyaya: spiritual study, ishwarpranidhana: devotion towards the god.

### Asana (Physical Posture)

Asanas are helpful to overcome the pain & suffering of the body. The main purpose is basically to keep the body fit.

### Pranayama (Mastery of Breath)

According to Hatha Yoga, we bring the balance between the two nadisi.e., ida and pingla. This is achieved with pranayama.

Note: Pranayama can be achieved by gaining mastery over the asanas

### Pratyahara (Withdrawal of the Senses)

It means turning the sense organs in an inwards direction.

### Dharana (Focusing)

Dharana helps in developing the Sankalp shakti (willpower). The practice of the bahirang aspect of Yoga (Yama, Niyama, Asana, Pranayama, Pratyahara) will help a person to save energy, this energy can be used to make progress in antaranga Yoga and to achieve higher aspects in life.

### Dhyana (Defocusing)

It is meditation. Brings the mind to a state of nirvicharavastha (thoughtless state). It helps to bring acceptance in a person, this acceptance helps the person to accept the other individual, and their thoughts and thus brings harmony to society.

### Conclusion

Yoga means to unite. It brings harmony to the person and helps in fulfilling the 'abhava' or absence in the person. Patanjali Ashtanga Marg helps to reach this unity from the systematic approach of eight steps. Starting from the physical aspect, Yoga then eventually helps in overcoming the vrittis (mental afflictions). It leads to self-realization. This helps in making society more harmonious. ■



The image has been taken from "Yoga for Wellness and Social Harmony" online webinar



**Dr. Sujita Singh**  
Medical Superintendent,  
Delhi Heart & Lung institute,  
New Delhi

# COVID-19 and Vaccination

Dr. Sujita has done MBBS from Rajendra Institute of Medical Sciences, Ranchi. She has done diploma in hospital administration from YMCA and Masters in hospital administration from the Faculty of Management Studies, Delhi University. Initially, she was working in a clinic for 10 years when she entered into medical administration. She has worked in Balaji Action Hospital, Rajiv Gandhi Cancer Institute and now working at Delhi Heart and Lung Institute.

## Abstract

Coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus. It affects different people in different ways. Most infected people will develop mild to moderate illness and recover without hospitalization. Along with the basic measures, we are following appropriate guidelines. The best way to prevent and slow down transmission is "Vaccination". It is the need of the hour that each and every individual in the country get vaccinated in order to bring an end to this pandemic.

## Introductory Remarks

Director MDNIY highlighted the importance and need of vaccination. The world is going through challenging times because of this pandemic condition and not just pandemic isolation, lockdown during the last year, and a lot of psychological trauma. Vaccination has brought confidence in people to come out of their houses after the lockdown.

**A**s a part of the Friday Weekly Webinar Series, Dr. Sujita Singh discussed the various preventive measures in Corona time and gave emphasis on getting vaccinated so the transmission of the virus can be mitigated on 9<sup>th</sup> April 2021.

## COVID-19

COVID-19 is an acronym that stands for Coronavirus Disease of 2019. The name was given by the World Health Organization (WHO) on February 11, 2020, for the disease caused by the novel coronavirus SARS-CoV-2. It is an acute respiratory illness characterized by fever, dry cough, and shortness of breath. Some

patients may also have aches and pains, nasal congestion, runny nose, sore throat, or Diarrhea.

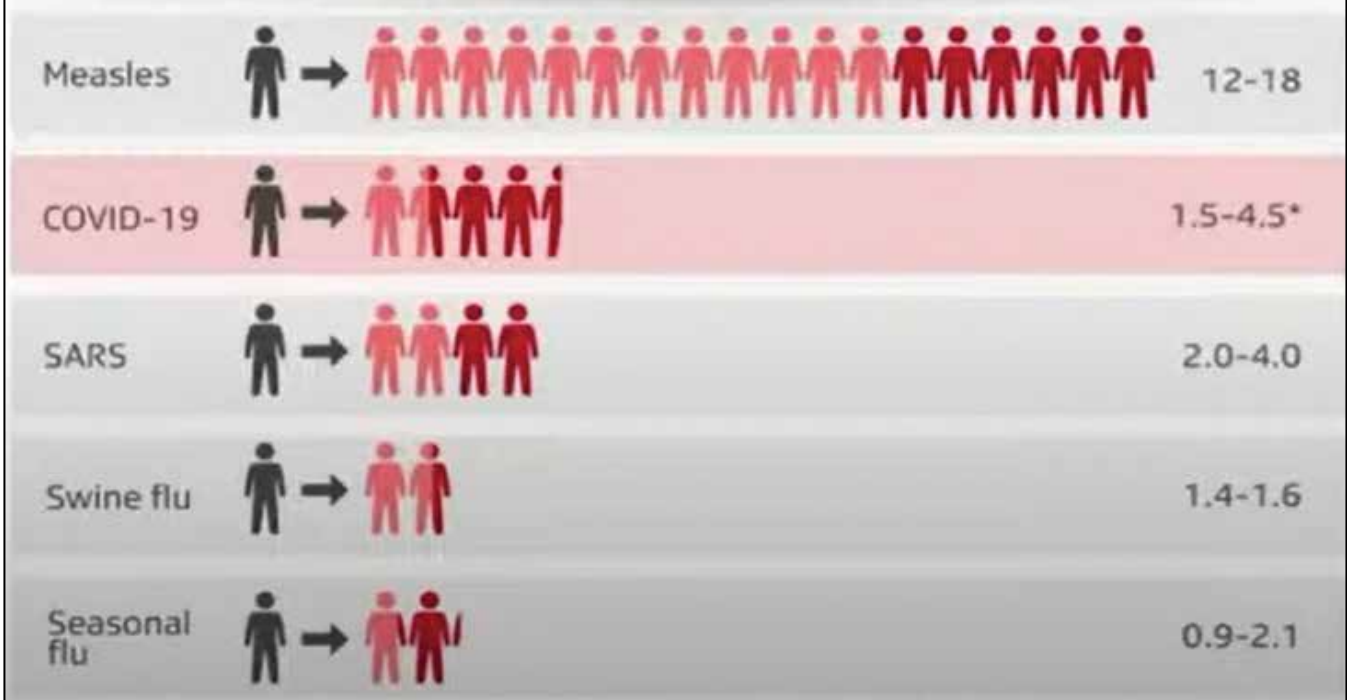
The incubation period (time between infection and appearance of first sign/symptom) of COVID-19 is up to 14 days. The disease ranges from mild to severe and has been classified according to severity as syndromes associated with COVID-19. Syndromes associated with COVID-19 are uncomplicated illness, Mild Pneumonia, Severe Pneumonia, Acute Respiratory Distress Syndrome (ARDS), Sepsis, Septic Shock.

COVID-19 is a new disease that has never existed before. Thus, humans do not have any natural immunity against the virus. People of all age groups but the following population subgroups are at greater risk of developing the severe disease with complications

1. Elderly
2. People having other co-morbidities(CVD,Hypertension,Diabetes, Respiratory illness).
3. People who are immune compromised (on Immunosuppressant drugs / people with HIV)

# Infection rate

The average number of people an ill person infects



## Transmission of COVID -19

As per the data from “WHO, CDC, London School of Hygiene and Tropical Medicine, and various other studies “One Person Infected with COVID-19 can infect an average of 1.5 -4.5 other people (It varies from country to country).

This is higher than the infection rate of seasonal flu and other respiratory syndromes of recent times. The average number of secondary cases arising from primary cases is a susceptible population. The transmission rate of COVID-19 is higher than the other flu which we call as “Basic Reproductive Number (R0)” and it is 19 for COVID which is very high.

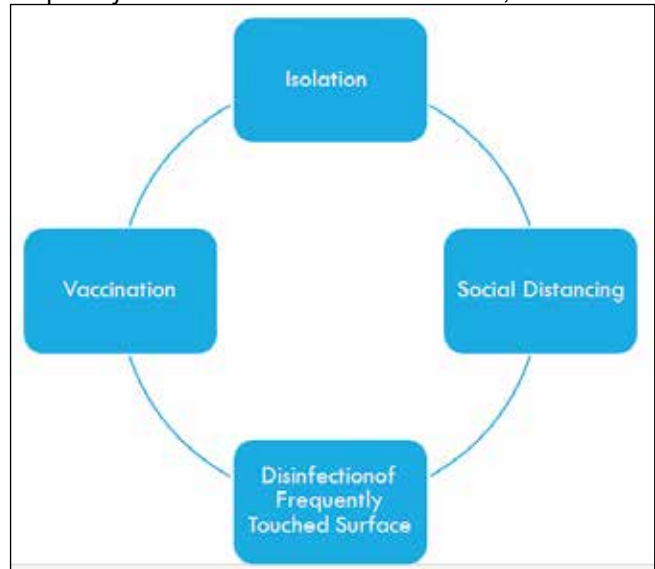
## How to reduce R0

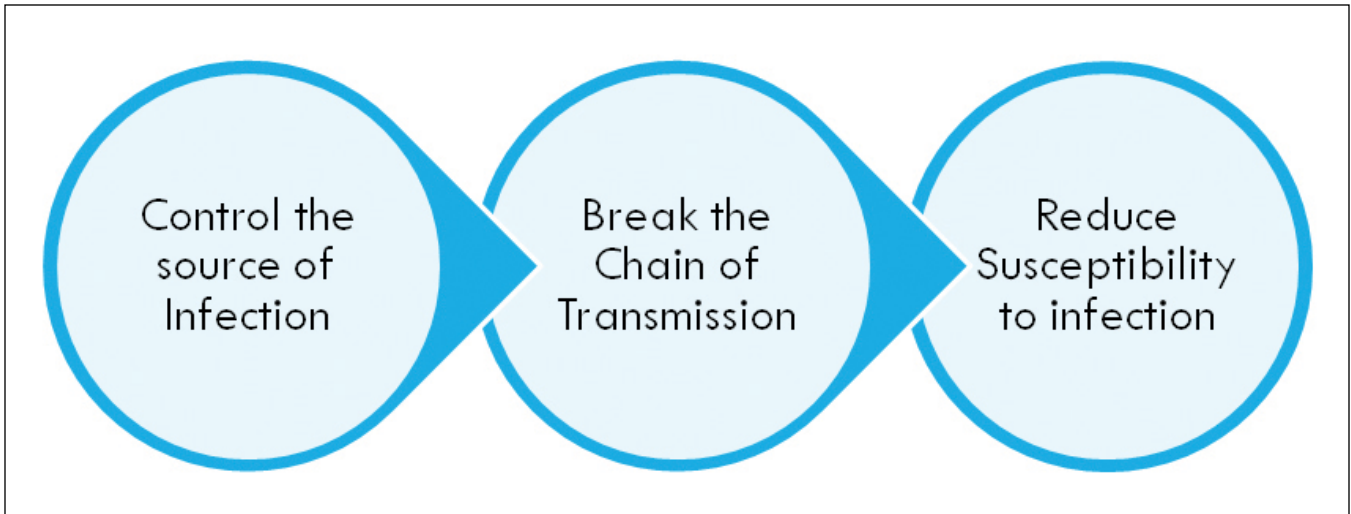
R0 depends on several factors like infectiousness of agent, susceptibility of population, and exposure of the susceptible population.

**Isolation** – Reduce the spread of agents from the infected host through Isolation.

**Social Distancing** – Reduce exposure of susceptible host by social distancing or by using PPE Kits

**Disinfecting of Frequently Touched surface** – Reduce environmental survival of agents by disinfecting frequently touched surfaces like floors, and other





commonly used areas like toilets, wash basins, etc., and objects like doorknobs, handles, keys, etc.

**Vaccination** – Increase resistance of susceptible hosts.

### Transmission ways of the COVID-19 Virus

COVID-19 spreads by the viral load present in respiratory droplets of infected persons released into the air when they cough or sneeze. These droplets spread the infection in two ways

**Direct Spread:** by droplets that land on the face or hands of another person. Spread by direct contact has been seen to occur within a distance of 3 feet or 1 meter.

**Indirect Spread:** By contact with the surface contaminated by respiratory droplets. The droplets settle on the surface. The virus can survive on contaminated surfaces for up to 2-3 days.

### COVID-19: A Global Issue

COVID-19 spread rapidly across the world in a span of fewer than 3 Months: December 31, 2019 – A cluster of 27 Pneumonia cases of unknown etiology were reported from Wuhan, China. On January 9, 2020 – Novel Coronavirus was detected as the causative agent. The disease was named COVID-19. On March 13, 2020 – Disease Spread to 123 Countries, the first death was reported in India (Karnataka) on 11th March 2020 WHO declared COVID-19 as a Pandemic.

### Response Strategies to COVID-19

Key principles to stop Transmission of COVID-19 virus

**Control the Source of Infection:** Source of Infection: Confirmed COVID-19 cases both Symptomatic and Asymptomatic are sources of Infection.

**Method to Control Source of Infection:** Testing of suspected symptomatic and close contacts and isolation of positive cases. Since there is no proved treatment for the disease, isolation of cases remains the mainstay for controlling the source of Infection.

**Break the chain of Transmission Chain:** Transmission can be direct or indirect by reducing direct contact with respiratory droplets from infected persons and reducing indirect contact with surfaces infected with respiratory droplets transmission of COVID-19 virus can be stopped.

**Reduce Susceptibility to infection: Vaccination of susceptible Individuals:** Since it might take more than a year to develop a vaccine against the disease, the focus till then is to break the chain of transmission and flatten the curve of disease.

### Methods to Prevent Transmission

Preferably use warm water and soap and rub your hands for at least 20 seconds. SARS-CoV-2 is found in high amounts in the nose and mouth. This means it can be carried by air droplets to other people when you cough, sneeze, or talk hence wear a mask and protect yourself and others from Corona Virus. Wash your hands carefully after you sneeze or cough, regardless. Physical (social) distancing, also means staying home and working remotely when possible. If you must go out for necessities, keep a distance of 6 feet (2 m) from other people. You can transmit the virus by speaking to someone in close contact with you.

## Role of Yoga and Naturopathy

Despite a variety of preventive measures, such as social distancing, covering the face with a mask, etc. adopted by the general public, the population across the world continues to suffer severely from the Coronavirus pandemic. However, co-morbidities, diet, fitness levels, sleep hygiene, and lifestyle play a big role in shaping our immune response. Naturopathy is a system of alternative medicine that follows Therapeutic order that is effective in modulating these factors, improving the body's ability to heal itself.

Yoga and Naturopathy help in improving muscular immunity and reducing the reactivity of the airways: Gargle with hot saline water when you wake up and before you go to sleep. Perform JalNeti, steam water when you wake up and before you go to sleep. Performjalneti, Steam inhalation followed by Kapalbhati. Neti is an important shatkriya and is effective in managing upper respiratory tract diseases and reducing the reactivity of the airways.

It improves innate responses; makes sure you have a healthy and balanced diet, consisting of whole grains, fruits, vegetables, plant-based proteins, and healthy fats. Detoxify your body once a week and drink at least a glass of warm water with lemon. Fast for a day with a diet consisting entirely of fruits and liquids like coconut water, lemon water, and hot herbal drinks 3 times a day.

## COVID-19 Vaccination

India has already had two approved COVID-19 vaccines-Covishield and Covaxin-that are currently being administered to eligible Indians. So far, frontline and healthcare workers as well as people above 60

years of age and people over 45 years of age with co-morbidities were being administered the vaccines.

## Effectiveness of Vaccine

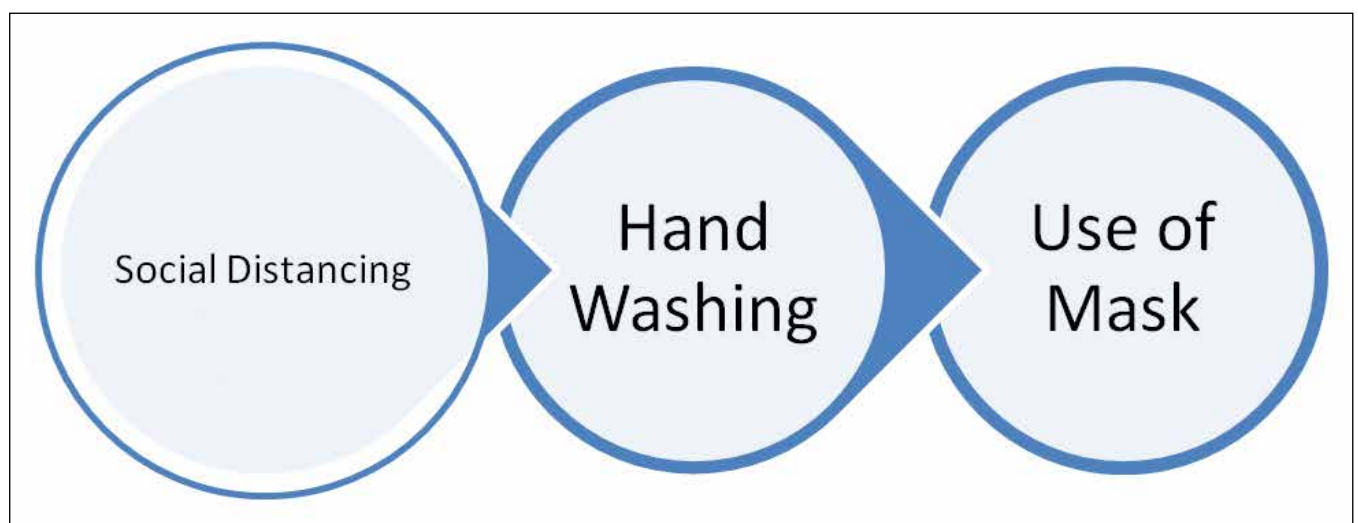
Large clinical trials are an important way to show if vaccines are safe and effective. An effective vaccine reduces mild, moderate, and severe cases of COVID-19. After you are vaccinated it is possible to spread the infection to others without getting the disease yourself. Continue to wear a mask, clean your hands, and keep



a safe distance. People can still catch the coronavirus more than two weeks after the second dose, but the severity of the disease will always be less.

## Side effects of COVID-19 Vaccine

Reported side effects of COVID-19 vaccines have mostly been mild to moderate and short-lasting. Side effects can be fever, fatigue, headache, muscle pain,





chills, diarrhea, and pain at the injection site. More serious or long-lasting side effects of vaccines are possible but extremely rare. Vaccines are continually monitored to detect rare adverse events.

### Conclusion

We can prevent the COVID-19 virus spread by drinking plenty of warm water, herbal tea, lemon/fresh citrus juice, amla juice with honey, and consuming spices

and herbs in daily food such as jeera, turmeric, ajwain, pepper, cloves, cinnamon, ginger, garlic, onion, having a balanced and protein-rich diet-dal kichadi, boiled legumes and fiber-rich foods millets, sprouts. Can include zinc and selenium-rich foods like oats, spinach, beans, milk, cheese, nuts, etc., in or apart from all these follow basic measures like wearing a mask, washing hands with soap thoroughly, using sanitizer, and getting fully vaccinated as early as possible. ■



The image has been taken from "COVID-19 and Vaccination" online webinar



**Prof. Narasingha Charan Panda**  
Professor of Sanskrit,  
Vishveshvaranand and Vishwa  
Bandhu Institute of Sanskrit  
and Indological Studies, Panjab  
University, Chandigarh.

# Yoga and Ayurveda in Current Scenario

Prof. Narasingha Charan Panda is well-known in the field of Indological Research. He has served as an ICCR Chair Visiting Professor of Sanskrit at Sanskrit Studies Centre, Faculty of Archaeology, Silpakorn University, Bangkok, Thailand. He is also working as the Editor of the International Journal of Indology & Culture (Thai Prajna)- A Peer Reviewed International Research Journal (Vol. V), Sanskrit Studies Centre, Silpakorn University, Bangkok, Thailand. In addition to these, presently he is also serving as an Editor of Vishveshvaranand Indological Journal of Panjab University, Sadhu Ashram, Hoshiarpur. Earlier, Prof. Panda had served as Visiting Professor of Sanskrit & Vastu at Mahatma Gandhi Institute, Mauritius in 2013.

## Abstract

The hectic schedules of busy lives and the stress accumulated by it make everyone prone to diseases and less concerned about taking deep rests to keep ourselves healthy. The lecture discussed the importance of Yoga and Ayurveda in the Current Scenario by providing various references from various ancient texts.

## Introductory Remarks

Director MDNIY defined how Yoga and Ayurveda have their unique place and functions. Each overlaps with others at various levels. Yoga is a holistic approach it cannot be reduced to the body alone. In today's perspective, both Yoga and Ayurveda are essential for the prevention of the COVID-19 Pandemic. Ayurveda and Yoga, both are sides of a single coin.

**P**rof. Narasingha Charan Panda discussed the importance of 'Yoga and Ayurveda in Current Scenario' by providing various references from various ancient texts on 16<sup>th</sup> April, 2021.

## Yoga reference in Amara Kosha

*Yogah Sannahanopaaya Dhyaanasangatiyuktishu |*  
(Amara Kosha)

Yoga is a means to prepare, it is meditation, it is union, and it is the application of skill with intelligence. Through meditation the atman unites with the paramatman, the Scholars of Agama say that the union of Shiva and Shakti is "Yoga". References to Yoga are given in Vedas, Upanishads, and Puranas also. Yoga is an ancient science. It helps in the upliftment of visionary power.

Yoga is the treasure that is given by Rishis to people around the world, attaining Samadhi is not an easy task. It is difficult for an ordinary person to sit in a single place even for a few minutes. Multiple thoughts will come to mind as people are surrounded by various objects of attraction, attachments, and ignorance. It is difficult for an ordinary person to disconnect from the materialistic world. Just going through the texts and doing a few practices doesn't make one a yogi.

## Reference of Yoga in Swetaswetro Upanishad:

न तस्य रोगो न जरा न मृत्युः प्राप्तस्य योगाग्निमयं शरीरम्  
—श्वेताश्वतरोपनिषद्

Charak Samhita has references that state, if the mind is not stable it will degrade your mental health and will become the cause of different diseases. There are different practices in Yoga to stabilize your body and mind like by the Practice of Asana (Postures) one can stabilize your body and by the practice of Pranayama Dhyana (Meditation), one can stabilize your breath and mind. Apart from the practice of Asana and Pranayama, it is important to maintain a healthy and balanced diet; without a balanced diet, a person would not be able to practice asana and Pranayama efficiently and will also get the benefits out of those practices.

## Dincharya as Per Ashtanga Hridya (Ayurveda text)

ब्राह्मे मुहूर्त उत्तिष्ठेत्स्वस्थो रक्षार्थमायुषः

Healthy person should get up from bed at brahmamuhurtha; that is, before dawn, or around 45 minutes before sunrise, around 5 – 6 am.

अभ्यङ्गमाचरेन्नित्यं, सजराश्रमवातहा ।  
दृष्टिप्रसादपुष्टिआयुःस्वप्नसुत्वक्त्वदाढ्यकृत् ॥  
शिरः श्रवणपादेषुतविषेशेणषीलयेत् ।  
वर्ज्योऽभ्यङ्गः कफग्रस्तकृतसंशुद्धिअजीर्णिभिः ॥

Oil massage should be done daily as it delays aging, relieves exertion and excess vata (aches and pains), improves vision, nourishes body tissues, prolongs age, induces good sleep, and improves skin tone and complexion. Massage should be specially done on ears, head, and feet and should be avoided in case of increased Kapha in the body, after purification therapies, and in case of indigestion.

Manusmriti also has references that say that without a reason one should never touch their sense organs (Indriyas) and ShustrutaSamhita have references that say one should wash their hands, and feet before eating food. Asper Padma Purana, one should not use the clothes used by other people, and in Mahabharata, there are references that state that a person should use different clothes for sleeping, going out, and spiritual activities (Daily Pooja).



Friday

WEBINAR

Series

## Importance of Bathing in CharakSamhita

पवित्रंवृष्यमायुष्यंश्रमस्वेदमलापहम्द्य  
शरीरबलसन्धानंस्नानमोजस्करंपरम् (Cha.Su.5/94)

दौर्गन्ध्यंगौरवंतन्द्रांकण्डूंमलमरोचकम्द्य  
स्वेदबीभत्सतांहन्तिषरीरपरिमार्जनम् (Cha.Su.5/93)

Bathing is purifying, promoter of virility and longevity, remover of fatigue, sweat, and dirt, and brings about physical strength. Wiping of the body removes body fetor, heaviness, fatigue, itching, dirt, anorexia, and loathsomeness due to sweating.

## Conclusion

If one should follow the dincharya (Daily Routine), nothing can alter their healthy state. Ayurvedic texts have all the references of Dincharya, and Ritucharya; for a healthy life one should follow proper dincharya as per Ayurveda and should include Yoga practices in their lifestyle. ■



*The image has been taken from "Yoga and Ayurveda in current scenario" online webinar*





**Dr. Surakshit Goswami**  
Yoga and Spiritual Master

# गीता के अनुसार दिनचर्या

Dr. Surakshit Goswami took formal training in Yoga at the Gurukul Kangri University, Haridwar and did MA, PhD in Yoga. He taught Yoga in Gurukul Kangri University from 1995-2004. Since 2004, he is associated with the Times of India Group, as a Yogacharya & Chief Spiritual. He has translated the Gita in simple Hindi, written 6 books and more than 2500 articles in newspapers. He has conducted about 5,000 workshops on Yoga, Health and Wellness & Spirituality.

## Abstract

Today's lifestyle has become the root cause of most of the diseases. Our "Dincharya" has a pivotal role in maintaining healthy life. Bhagavad Gita is an epic scripture which has the answers to all our problems and also highlights how to live a balanced life to attain health and happiness.

## Introductory Remarks

Director MDNIY shared the timeless wisdom and key life lessons from Bhagavad Gita. It is also known as Yogshastra. It is considered to be one of the greatest Yogic texts that elaborate upon Dincharya which includes Ahara, Nidra and Yoga Abhyaas. Ayurveda and Swasthavritta also have references of Dincharya, Ritucharya and Ratricharya. However, Shloka's of Bhagavad Geeta explains all these in very simple ways.

**A**n elaborative lecture was delivered by Dr. Surakshit Goswami wherein he highlighted and discussed the meaning and importance of proper Dincharya as mentioned in the Bhagavad Gita on 23<sup>rd</sup> April 2021.

Health to a great extent depends upon how one spends one's day i.e., concept of proper dincharya. God has given us this body but how we maintain this body; how we take care of this body and how we give rest to this body all of this comes under Dincharya (Daily Routine). Dincharya makes us understand the best time for our daily routine like waking, exercise, bathing, meditation, prayer, meals, study, work, relaxation, and sleeping. This is the foremost step to maintain a healthy body, mind, and soul. Following a proper dincharya helps us to maintain our physical, mental, social and spiritual

health. In today's life, the major cause for most of the diseases lies in the family lifestyle routine itself.

## Dincharya According to Bhagavad Gita

युक्ताहारविहारस्य युक्तचेष्टस्य कर्मसु ।  
युक्तस्वप्नावबोधस्य योगो भवति दुःखहा ॥ 6.17 ॥

In the 17 Shloka of 6 Chapter, Shree Krishna said that those who eat in moderation and involve in recreational activities, have balance in work, and are regulated in sleep, can mitigate all sorrows by practicing Yoga.

Moderate diet (Aahar), Vihar (Recreation), Control over mind, work and regulation in sleep are the 5 factors that Shree Krishna emphasized on for a better daily routine. In the Shlokas Shree Krishna uses the word 'Yukta' which means 'Moderate'. Moderation is a key to a happy and healthy lifestyle. Further, the Speaker gave an elaborative description on the factors mentioned in Bhagavad Gita to understand the concept Dincharya.

## Moderate Diet (Aahar)

Moderation is the key word for a balanced lifestyle. Here, moderation means regulating or controlling our daily food intake. Taking of too much or too less will harm our health. Too much eating makes us feel lethargic and lead to a shift from Rajasic to Tamasic. Eating too much requires adequate energy to digest the same

thereby one experience sleepiness & drowsiness. The concept of having food as per the Yogic Texts is that half of the stomach should be filled with solid, one-fourth with liquid and rest needs to be kept empty.

### Moderate Recreation (Vihar)

Regular physical activity is one of the important aspects to remain healthy. For a healthy life, the basic rule revolves around “Move the Gross (Sthula) and stabilize the Subtle (Mind/Mann)”. Whatever, we are doing throughout the day should be moderate. The level of daily activity should be appropriate with regards to our health, job and so on. For a sedentary lifestyle, we should undertake the right level of exercise. However, the body should be given optimum rest in case of hectic lifestyle.

### Proper Action (Karma)

Karma is utmost important to fulfil the motto of Dincharya. We have Viveca “The power of discrimination between right and wrong. Welfare is one of the integral parts of Karma. It prevents one from indulging in wrong activities, which affects mental health and would further affect health.

### Control over Mind (Mann)

The controlling over one’s mind elevates self-esteem. Every day is filled with many opportunities to let negative

thinking rule your life and destroy your happiness. The skill of controlling thoughts leads to happy life. Maharishi Patanjali’s text “Patanjali Yog Sutra” talks about controlling the fluctuations of mind. Our Mind is clouded by the six arch enemies of ManvizKama, Krodha, Lobha, Moha, Mada and Matsarya; can be conquered by controlling the mind.

### Moderate Sleep

Sleep has a potential contribution to health. Lack of sleep may lead to sleep disorder, is an indication of stress and unhealthy life. Quality sleep nourishes the mind and improves both short-and long-term mental powers. A regular pattern of quality sleep should be maintained and emphasized.

Yoga practice leads to healthy lifestyle. Yogasana controls our physical body, Pranayama controls breath, Pratyahara works on Indriyas and Meditation controls Mind (Mann).

### Conclusion

Moderation is the keyword for a healthy and balanced lifestyle. Moderation in diet, recreational activities, Karma, sleep results to better lifestyle. By being moderate in bodily activities and practicing Yoga, sorrows of the body and mind can be reduced. ■



A Glimpse of “Dincharya according to Gita” Webinar.



**Yogacharya Dhakaram**  
 Founder of Yoga Peace Sansthan  
 Ekam Yoga Academy

# How to Protect Yourself from COVID-19 through Yoga

Yoga is a divine path that leads to higher consciousness and self-realization. As a practitioner Yogacharya Dhakaram Ji began his journey when he was 9 years old, to be physically fit and learn the best way to live his life. After exploring various concepts of Yoga, in the year 1993, he sensed the importance of sharing this knowledge with a motive to cure everyone around him. With the support of his close friend, in 1998 they named their Yoga classes 'Yogapeace'. In the year 2005, they started a small centre and started treating participants against various health issues with Yogic therapies. People showered him with so much love & respect which motivated him to enhance his knowledge, efforts, & experience as a 'Guru'.

## Abstract

Today's lifestyle has become the root cause of most diseases. Our "Dincharya" has a pivotal role in maintaining a healthy life. Bhagavad Gita is an epic scripture that has the answers to all our problems and also highlights how to live a balanced life to attain health and happiness.

## Introductory Remarks

Director MDNIY explained how Yoga helps remaining healthy both physically and mentally. This pandemic has taught us that only physical health is not enough mental health also needs to be considered for a healthy life. Yoga has been established as a means to boost immunity and improve overall health and well-being. It is the need of the hour that every one of us should adopt Yoga as a lifestyle.

**Y**ogacharya Dhakaram Ji gave an elaborated lecture as a part of the Friday Weekly Webinar Series on 30<sup>th</sup> April, 2021 wherein he discussed how to protect yourself from COVID-19 through Yoga.

Pranayama is an important aspect of Yoga. It is made of two words Prana and Ayama. In Pranayama the word prana means vital energy. When we raise both hands up during the practice of pranayama, it helps

in broadening the chest, opens up the lungs, and increases the oxygen level in the body and not only the respiratory system, pranayama also has a positive impact on our cardiovascular system.

Covid-19 has seriously impacted the person's immunity. Less immunity can negatively impact our lungs and lead to various respiratory disorders like untimely cold & cough, asthma, bronchitis, tuberculosis, allergic problem, sinusitis, etc. Hence, children and elder people contract the disease more easily as their immunity is less.

## Importance of Pranayama

Pranayama is very helpful during the time of the pandemic as it increases the vitality of a person. However, while performing the pranayama, one should take care of the following points.

1. Eyes should be closed during the practice of pranayama.

Note: If our eyes are open then the energy is flowing outside, and in the outside world we mainly find fear, anxiety, stress, etc. We can get distracted by it if practice with open eyes. Keeping the eyes closed will help the inward flow of energy.

2. Keeping the back straight throughout the practice.
3. Doing the practice with a smiling face.

If Pranayama is done properly then it can give enormous health benefits to the practitioner:-

1. It Strengthens the lungs
2. Increase the immunity
3. Increase the resistance power
4. Bring harmony between mind and breath

### Conclusion

Asana helps in the purification of the body, Pranayama helps in the purification of the mind, and meditation helps in the purification of the soul. Yoga helps to calm down the mind and enhance immunity. Yoga practitioners may be instrumental in coping with stress associated with the lockdown. ■



The image has been taken from "How to Protect Yourself from COVID -19 through Yoga" online webinar.







**Dr. G. L. Khanna**  
Pro-Vice Chancellor,  
Manav Rachna International  
Institute of Research and Studies,  
Faridabad

# Exercise and Body Immunity during COVID-19 Pandemic

Prof (Dr.) G. L. Khanna is Former Vice Chancellor (Incharge) of Shree Guru Gobind Singh Tricentenary University, Haryana (SGT), and former Project Director, Indian Institute of Sports Science and Research, Ministry of Youth Affairs, Govt. of India. He is also a Member of Prime Minister Olympics Task Force 2024, 2028. He is Editor in Chief of MR International Journal of Applied Health Sciences and Editorial Board member and Reviewer of many International and National Journals. He has been associated with various Universities and has been a member of the Prestigious professional and Governing Bodies of Sports.

## Abstract

COVID-19 is a public health challenge globally. The immune system plays a vital role in preventing an individual from contracting the novel coronavirus and the progression of the disease. With the advancement of technologies over the past several decades. Physical inactivity has progressively increased nowadays and potentially contributes to the risk of numerous diseases/disorders. Physical activity and physical conditioning can lower the risk of infection from viruses and maintenance of overall health. Regular exercise has an overall anti-inflammatory influence mediated through multiple pathways.

## Introductory Remarks

Director MDNIY mentioned that the entire country is suffering from a pandemic, even from Prime Minister to the common man. What may happen tomorrow no one knows. Under this condition, there is a lot of anxiety, suffering, and uncertainty. The hardship is how to manage our physical wellbeing and mental well-being under such conditions. The other aspect includes Yoga as a sport. Last December government of India declared both Ministry of Youth Affairs & Sports and the Ministry of Ayush together, declared Yogasana as a competitive sports. The government is taking many steps to promote it as a sport.

**A**s a part of the Friday Weekly Webinar Series, an informative lecture was delivered by Dr. G.L. Khanna, where he discussed about the importance of exercise and body immunity during the COVID-19 pandemic on 14<sup>th</sup> May 2021.

## Spread of the Coronavirus Disease

Based on the RNA sequence comparison, 96% of the genome SARS – CoV -2 is identical to a bat coronavirus termed BatCoV RatG13. SARS – CoV2 also has a close sequence similar in some genome locations with a coronavirus in pangolins. (Pangolins are scaly anteaters). There are 3 stages of coronavirus:

- **Stage 1:** An asymptomatic incubation period without detectable virus-least manageable.
- **Stage 2:** Non-severe symptomatic period with the presence of virus – Individual with mild fever, cough, headache, or possible conjunctivitis. This is due to infection.
- **Stage 3:** Severe respiratory symptomatic stage with high viral load.

These stages we need to control from the very beginning only as after a few weeks only it can go to stage 3. The coronavirus can show various symptoms in an individual.

- **Most common symptoms:** Fever, Dry cough, and tiredness.
- **Less common symptoms:** Aches and pains, sore throat, diarrhea, conjunctivitis, headache, loss of taste or smell, a rash on the skin, or discoloration of fingers.
- **Serious symptoms:** Difficulty in breathing or shortness of breath, chest pain or pressure, and loss of speech or movement.

Our immunity plays an important role in protection. It is the best defense to defend against pathogens (examples: viruses, bacteria, fungi, protozoa, and worms). Immunity can be divided into two categories:

1. **Innate immunity:** It comprises physical and chemical barriers and the action of cells such as macrophages dendritic cells (DCs), natural killer cells (NKs), neutrophils, and molecules such as cytokines, interleukins (ILs), nitric oxide (NO) and superoxide anion (O<sub>2</sub><sup>-</sup>).
2. **Adaptive immunity:** It has a mechanism of action for the T lymphocytes (TCD4 and TCD8) and B lymphocytes.

Adaptive immunity: Can be subdivided into:

**Cellular immunity and Humoral immunity:** It is mediated by cells such as macrophages and lymphocytes.

Note: the regular practice of physical exercises can act on the immune response, reducing the risk of developing systemic inflammatory processes and stimulating cellular immunity.

There are several factors that are associated with

the immune response these are genetics, age, sex, nutritional value, physical status, etc. However, one can enhance immunity by improving preexisting physical fitness, decreasing body weight and fat levels, appropriate nutrition, good sleep, and improving mental health.

## Physical Activity

The definition of physical activity is defined as any bodily movement produced by the skeletal muscle that requires energy expenditure. Physical activity can be divided into aerobic fitness and strength & balance. There are several forms as well like active recreation, sports, cycling, walking, play, dance, gardening, house cleaning, carrying weights, etc.

There are several effects of inactivity on physical health such as sarcopenia, reduces muscle function, a risk factor for cardiovascular and metabolic disorders, impaired immunity function, immunosenescent, increase incidence of lung inflammation and bacterial pneumonia, impaired energy expenditure, and increased total body and abdominal fat.

However, if a person makes the exercise a regular habit, then it helps improve T cells response, decreases the incidence of URTI, inhibits lungs inflammation and bacterial pneumonia, induces a stronger & longer lasting antibody response to the influenza vaccine, mitigates immunosenescence, anti-inflammatory capacity.

Relation between Physical Activity, Lung Function, and Immunity

- **Immunity:** Enhances innate immunity & immunosurveillance and reduces systematic inflammation.
- **Respiratory Health:** Increases lung capacity, and breathing rate, strengthens the diaphragm, and elevates a number of alveoli.
- **Circulation:** Increases blood vessel elasticity, and blood flow and maintains blood pressure.

Aerobic activities also have a positive impact on the immune system such as increasing the whole body's immune system, increasing the immunity of the respiratory system and regulating the amount of C

reactive protein, and decreasing anxiety and depression. These aerobic activities impact the respiratory system as it acts as antibiotic and antimycotic prophylaxis, increases the strength and flexibility of respiratory soft tissues, act as an antioxidant, and produce autonomic modulation.

- A decreased extravasation of leukocytes from vessels into tissues.
- An increased number of precursor cells in the marrow

Hence, the exercise plays an important role as it helps



### Positive Impact of Exercise on Body (Neutrophils and Leukocytes)

Some researchers showed regular structured exercises increase the number of naïve T cells in peripheral blood at rest. Other research showed even a single bout of exercise enhances the manufacture of viral-specific T cells. So even if one person does the regular practice or does the practice in an interval then also it has an impact on T –cells. During exercise, the main source of circulatory neutrophils is primary (bone marrow) and secondary (spleen, lymph nodes, gut) lymphoid tissues as well as marginated neutrophils from the endothelial wall of peripheral veins.

- Exercise changes leukocyte numbers in circulating blood.
- An increased release of leukocytes from bone marrow storage.
- A decreased margination of leukocytes onto vessel wall.

to increase leukocytes. Also, the exercise promotes the natural killer cells which help to recognize and eliminate virus-infection and neoplastic cells. Exercise mobilizes these NK cells throughout the duration of the exercise.

### The intensity of the Exercise during the COVID-19 Pandemic

Intensity of the Exercise during COVID-19 Pandemic

- **Low Intensity: (40 -50% MHR):** It includes slow walking, slow bike riding, light housework, stretching exercise, and gentle Yoga.
- **Moderate Intensity: (50 -60% of MHR):** It includes brisk walking, standard Yoga, gardening, ball sports, resistance, and training with 10 -12 repetitions per set.
- **High Intensity: (70 -85% of MHR):** It includes running, jogging, race walking, aerobic walking, aerobic dancing, and resistance exercise with more than 10 -12 repetitions per set.

Note: MHR is the maximum heart rate.

## Health Benefits of Physical Activity During and After Covid-19

The exercise helped in various aspects such as sleep problems, increasing self-esteem and self-confidence., helped in overweight and obesity which also helped in reducing the risk of diabetes and, CVD and hypertension, increasing the energy level in the body.

### WHO Recommendation for Physical Activity

- **Children and adolescents aged (5 to 17 years):** All children and adolescents should do at least 60 minutes a day of moderate to vigorous intensity physical activity, including an activity that strengthens muscle and bone, at least 3 days per week.
- **Adults aged (18 to 64 years):** A total of at least 150 minutes of moderate-intensity physical activity throughout the week, which includes 75 minutes of vigorous-intensity physical activity throughout the week, which includes muscle strengthening activities for 2 or more days per week.

- **Adults aged (65 and above):** They should do a total of at least 150 minutes of moderate-intensity physical activity throughout the week.

### Conclusion

The immune system plays a vital role in preventing an individual from contracting the novel coronavirus and the progression of the disease. Physical condition is very important and helps to lower the risk of infection from viruses. Maintaining overall health is important to fight against the virus. Regular exercise and training have an overall anti-inflammatory influence mediated through multiple pathways. Moderate intensity exercise of about 30 min can enhance the immune response. Children can be engaged in hours of physical activity. The suggestion is given not to involve in vigorous-intensity exercise during this pandemic which makes a person fatigued and reduces immunity of the person. ■



The image has been taken from "Exercise and Body Immunity during COVID-19 Pandemic" online webinar



**Prof. Viney Jain**  
Former Director, INMAS, DRDO

# Tackling COVID-19 Pandemic-current scenario and upcoming developments

A biophysicist and radiation biologist, Dr. Viney Jain received his postgraduate and postdoctoral training from the universities in Goettingen, Kiel, and Frankfurt/M, Germany. Author of more than 150 original research publications in peer-reviewed scientific journals, he served on the faculties of the Physical Research Laboratory, Ahmedabad, All-India Institute of Medical Sciences, New Delhi; National Institute of Mental Health and Neurosciences, Bangalore, Delhi University, and as a visiting professor/scientist at several universities in India, Germany, U.K., France, Netherlands, and the USA. His current studies are focused on Leshya, Meditation, and Behavior Modification.

## Abstract

2DG proved to be beneficial and showed significant improvement in COVID patients' recovery and reduced supplemental oxygen dependence. Practicing Preksha meditation can help reduce stress and anger.

## Introductory Remarks

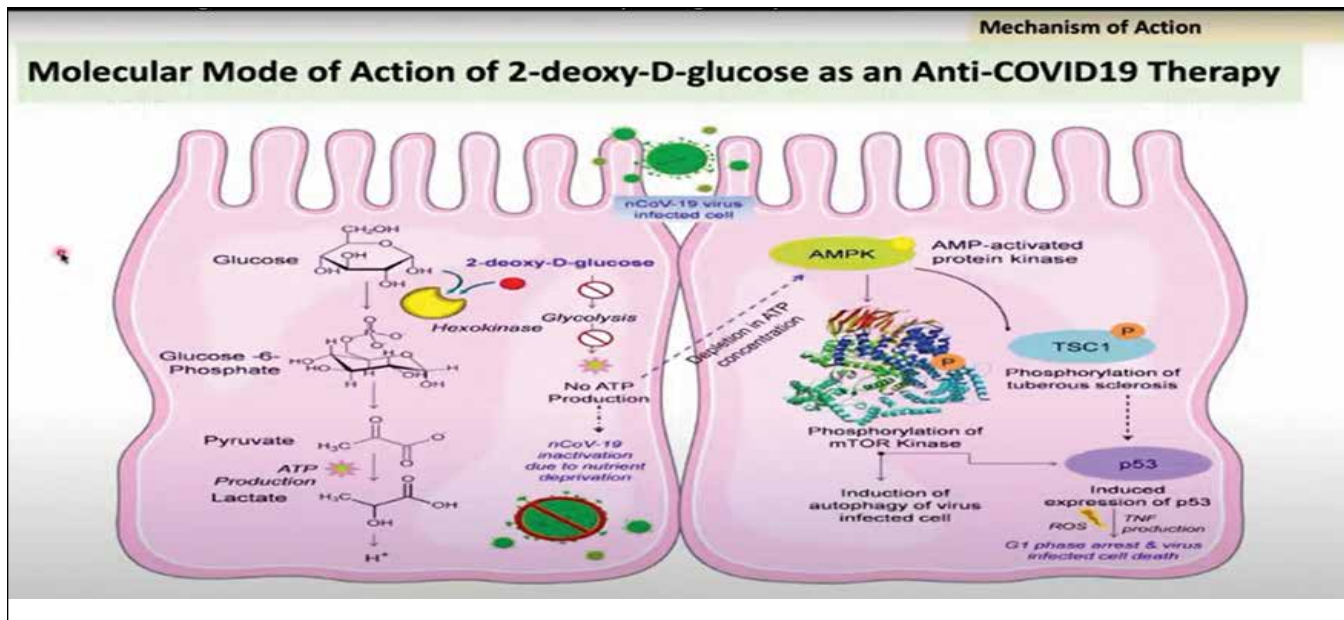
Director MDNIY discussed how the COVID-19 pandemic has wreaked havoc throughout the world as affecting the mental health of people around the world massively. People have now also understood the importance of mental health. A holistic approach is required for putting an end to this pandemic. There are a few problems that have arisen in the current scenario that is difficulty in finding hospital beds and lack of professionally skilled health workers and lack of oxygen, non-availability of medicine, no effective medicine has been discovered so far but even those which have shown some benefits they are also not available easily in the market or they are very expensive. People are also apprehensive about another complexity which is the fungus infection in the patients who are under treatment in the hospitals, as a number of deaths have been reported in the last week. A lot of mental stress, fear, and anxiety among people is prevailing, therefore, this also has to be tackled in the post-COVID-19 era. For all these a holistic approach is required in managing the Covid-19 pandemic.

**D**r. Viney Jain discussed the various approaches in the management of the COVID-19 Pandemic as a part of the Friday Weekly Webinar held on 21<sup>st</sup> May, 2021.

## 2DG for COVID-19 treatment

The speaker explained several research studies on the potential role of 2-Deoxy-D-Glucose (2DG) in its antiviral activity developed by the Institute of Nuclear Medicine and Allied Sciences (INMAS), a lab of the Defence Research and Development Organisation (DRDO).

Cell entry of coronaviruses depends on the binding of the viral spike (S) proteins to cellular receptors and on S protein priming by host cell proteases. After entry into the host cell, the virus starts replicating rapidly within the cell using the cellular metabolic machinery with the aid of viral nuclease (NSP15endoribunuclease) and proteases (Main protease 3CLpro). Identifying the factors that allow SARS-CoV-2 to enter cells could

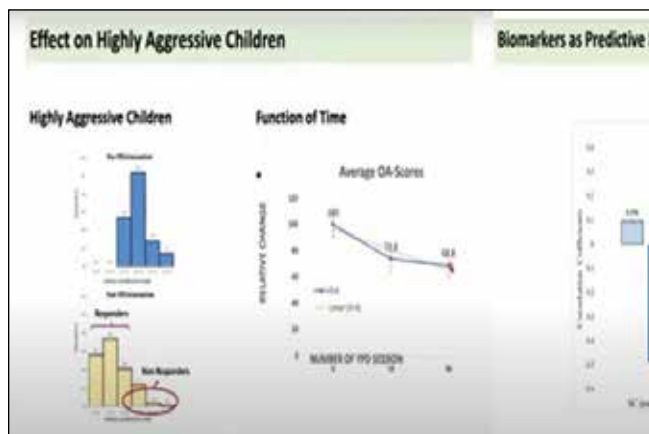
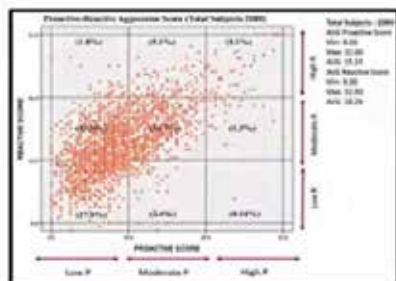


provide insights into the viral transmission and reveal potential therapeutic targets.

demonstrates that nutrient and energy deprivation is an effective way to suppress cancer cell growth and survival.

### Aggressiveness Profile in School Children

#### Proactive & Reactive Aggression



As 2-DG docks efficiently with the viral main protease 3CLpro and NSP15 endoribonuclease, it inactivates these viral receptors, thus incapacitating SARS-CoV-2. Such incapacitation was possible by the means of the formation of a hydrogen bond between 2-DG and proline residues of viral protease. The 2-DG derivative formed a hydrogen bond with the glutamine amino acid residues of the viral spike glycoprotein. It showed significant improvement in COVID patients' recovery and reduced supplemental oxygen dependence.

### 2DG suppresses cancer cell growth

By interfering with d-glucose metabolism, 2-DG

Table 2: Descriptive Statistics of Pre and post PM scores of Psychological Variables

Variables	N	Mean		Effect size	P-Value
		Pre-PM	Post-PM		
Perceived Stress	50	33.00 (8.59)	29.00 (7.29)	-0.50	<0.001**
Anger	50	28.18 (9.67)	23.62 (7.28)	-0.53	<0.001**
Quality of Life	39	54.38 (13.81)	61.51 (11.43)	0.56	<0.001**

In addition, 2DG increases oxidative stress, inhibits N-linked glycosylation, and induces autophagy. It can efficiently slow cell growth and potentially facilitate apoptosis in specific cancer cells. Although 2DG itself has limited therapeutic effects in many types of cancers, it may be combined with other therapeutic agents or radiotherapy to exhibit a synergistic anticancer effect.

### Effects of Preksha meditation

Empirical studies were done on school children, adults, and school teachers on the effects of Preksha meditation. The research reveals that there are two types of aggressiveness one is proactive and the other is reactive. Proactive aggressiveness is used for some goals and reactive aggressiveness is the result of some incident that occurred. Out of this sample, only 3-4 % of children had the aggressiveness issue. It was found that after 18 days of alternate days practice of Preksha meditation there was a reduction in aggression. Yoga Preksha Dhyana (YPD) may act by improving emotional

regulation and self-control, thereby enhancing stress-coping capacity. YPD-nonresponders, in comparison to YPD responders, were characterized by lower levels of stress response of HPA-axis 6 (assessed by salivary cortisol), lower PNS, and higher SNS activities. A study was also done on adults on the Application of YogaPreksha-Meditation to Prevent Stress-Induced anger in healthy Adults and the results indicate that intense training and practice of PM in short-term retreats can effectively reduce levels of perceived stress and anger.

### Conclusion

2-DG may reduce the infectivity and virulence of coronavirus by inhibiting both the entry and the replication of the virus inside the host cell. Yoga Preksha meditation helps to reduce stress and anger. Hence, consistent practice enhances the quality of life. ■



The image has been taken from "Tackling COVID-19 Pandemic-current scenario and upcoming developments" online webinar .



**Dr. Vishal Bansal**  
Professor & Head  
Dept of Physiology,  
Incharge Cardiopulmonary  
Rehabilitation Program  
V.P Chest Institute, University of Delhi

# Role of Pulmonary Rehabilitation in Chronic Respiratory Diseases

Dr. Bansal is a clinician-scientist heading the Department of Physiology at V. P. Chest Institute, University of Delhi. He is a medical graduate and has done post-graduation (MD) in Physiology from Maulana Azad Medical College and obtained his doctoral degree (Ph.D.) from the Faculty of Medical Sciences, University of Delhi. Dr. Bansal is a Member of the National Academy of Medical Sciences (MNAMS), India, and has been a Fellow of the American College of Chest Physicians (FCCP). He is also a qualified Diplomate of the National Board (DNB) in Physiology.

## Abstract

Physical Pulmonary rehabilitation has emerged as a recommended standard of care for chronic lung disease patients. It is an evidence-based, multidisciplinary, and comprehensive non-pharmacological intervention for patients with chronic respiratory diseases who are symptomatic. The main objective of pulmonary rehabilitation is to improve symptoms and restore functional capabilities.

## Introductory Remarks

Director MDNIY shed light on Pulmonary Rehabilitation which helps people who have lung diseases live and breathe better. It is very important for chronic lung disease patients. One of the pulmonary diseases that have affected people severely was Tuberculosis. Now the country and the people are being affected by the Pandemic due to the novel Coronavirus. Prevention though is a very important aspect however, if a person contracts any disease, then intensive care and rehabilitation become very essential.

**A**n elaborative lecture was delivered by Dr. Vishal Bansal wherein he highlighted and discussed about Role of Pulmonary Rehabilitation in Chronic Respiratory Diseases on 28<sup>th</sup> May 2021.

## Chronic Pulmonary Disease

The speaker mentions that Chronic Respiratory Diseases (CRDs) are diseases due to the blockage of the airways and other structures of the lung. Some of the most common is a chronic obstructive pulmonary disease (COPD), asthma, occupational lung diseases, ILD, TB, Lung Cancer, and Covid-19. Symptoms of Chronic Pulmonary Disease include a productive or non-productive cough, exertional dyspnoea, fatigue, exercise intolerance, disabilities in activities of daily living, peripheral muscle weakness, anxiety and depression, and poor quality of life. Any of these symptoms can be present in a person suffering from chronic respiratory disease.

## Chronic Respiratory Disease management

Chronic respiratory disease management includes



prevention of disease progression, alleviation of breathlessness and other respiratory symptoms, improvement of exercise tolerance and daily activity, prevention and treatment of exacerbations, improvement of health-related quality of life, and reduction in mortality.

## Pulmonary Rehabilitation

Pulmonary Rehabilitation is an evidence-based multidisciplinary and comprehensive intervention for patients with chronic respiratory diseases that are symptomatic and often have decreased daily life activities. Pulmonary rehabilitation is a holistic approach. The aim of pulmonary rehabilitation is to reduce disability and restore patients to the highest possible level of independent functioning. As per the American thoracic society, pulmonary rehabilitation is a comprehensive intervention based on a thorough patient assessment followed by patient-tailored therapies that include but are not limited to, exercise training, education, and behavior change. Factors contributing to functional disability of respiratory system

- Gas exchange abnormalities
- Reduced lung compliance
- Cardiac dysfunction
- Peripheral muscle weakness

In Rehabilitation, the primary focus is on Peripheral muscle weakness, as Chronic respiratory diseases mainly affect the muscles of the body. The Data given below in the images, it is showed that how chronic respiratory disease affects different muscles of the body. There is a significant reduction in muscle mass and endurance.

## Benefits of Exercise Training

- Decrease in breathlessness and fatigue
- Increased functional exercise capacity
- Enhanced neuromuscular coordination.
- Improvement in quality of life
- Improvement in Anxiety and depression
- Decreased health care utilization

The study revealed that prior to training, the patients had severe breathlessness. However, after the training, there was a reduction in severity. In the Biopsy, the oxidative enzymes were estimated and it was found that Citrate

Synthase and 3-Hydroxyacyl-CoA dehydrogenase levels also increased which improves the oxidative capacity of the muscle. Pulmonary Rehabilitation Components include rehabilitation assessment, Breathing Retraining, Exercise training, Patients Education, and Novel approaches: Neuromuscular electrical stimulation (NMES) and Tele-Rehabilitation

Pre-Rehabilitation assessment

- Medical history/co-morbidities/medication review

Assessment of: -

1. Breathlessness
2. Nutritional status
3. Disability in the activity of daily living
4. Oxygen status: Oximetry
5. Functional exercise capacity
6. Health-related quality of life.
7. Anxiety and depression
8. Patient's goal.

The base of the Nutritional Assessment comprises Body mass Index, Blood levels, Body composition analysis, Bone mineral density, etc.

## Assessment of Disability in Daily Activity

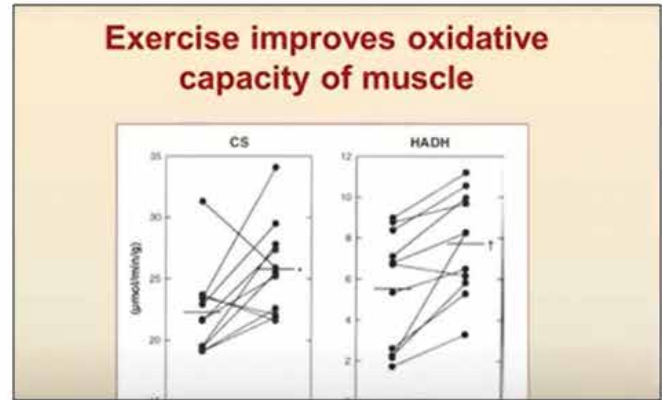
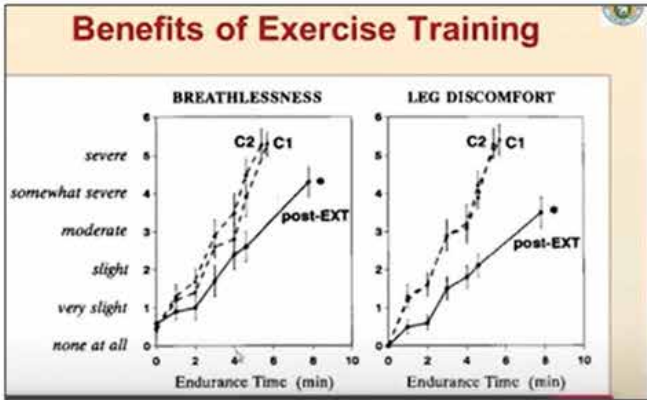
- Activities of daily living analysis & oximetry
- Home environment assessment
- Availability/Presence of family support
- Requirement for assisted devices
- Impact of co-morbidities on ADL

Assessment of functional exercise capacity includes a Six-minute walk test (6 M W T), Incremental shuttle walks test (I S W T), Endurance walks (E W), Stair climbing, Upper extremity test, Musculoskeletal assessment Cardio-Pulmonary exercise testing (CPET).

## Assessment of Health-Related Quality Of Life

The Pulmonary rehab worker gave a certain questionnaire with questions on especially respiratory health-related issues. The questionnaire was: -

- Chronic Respiratory Disease Questionnaire
- St. George Respiratory Questionnaire (SGRQ)
- Short form 36



### Assessment of Anxiety and Depression

- Hospital Anxiety and Depression scale (HADS)
- Becks Anxiety Inventory (BAI)
- Back Depression Inventory – 2
- Anxiety Inventory for Respiratory Disease (AIR)

Pulmonary rehabilitation post-Covid aims to restore the person in totality and helps to return them to their previous quality of life. Adverse effects of COVID-19 include weakness, fatigue, muscle pain, reduced joint mobility, and shortness of breath with activity, or performing daily activities. These physical impairments can lead to stress, triggering anxiety, and depression. Whereas, early intervention through exercise and inclusive treatment played an important role in the recovery process.

### Precautions

Exercise should be avoided during these: -

- Fever (>100 F)
- Shortness of breath at rest
- Chest pain or palpitation (Fluttering of the heart)
- Swelling in your legs

Exercise should be avoided in these cases: -

- Dizziness
- Drop in oxygen saturation SpO<sub>2</sub><88%
- Chest pain and irregular heartbeat
- Cool, clammy skin

### Conclusion

Effective pulmonary rehabilitation helps patients recover gradually from the deterioration of the condition. ■



The image has been taken from "Role of Pulmonary Rehabilitation in Chronic Respiratory Diseases" online webinar



**Dr. Satish Pathak,**  
Asst. Director, Scientific Research  
Department. Kaivalyadhama, Lonavla

# Yogic and General Tips to Remain Away from Corona

Dr. Satish D. Pathak is the Assistant Director at Scientific Research Department, Kaivalyadhama Yoga Institute & Research Centre, Lonavala, Maharashtra, and a retired Surgeon and Yoga Consultant. He has done his B.B.S. from Marathwada University in 1973 and C.P.S. (Gen. Surgery) from C.P.S. College Mumbai in 1979 with a Gold Medal. He has also done HathYoga Pramanapatra: a two years course from Shree Ambika Yoga Kutir Thane in 1997.

## Abstract

The lecture will present and discuss a holistic approach to the management of Covid -19 pandemic; this will deal with aspects of prevention from corona through Yoga and some other general tips to evade it.

## Introductory Remarks

Director MDNIY spoke briefly about the meaning of Yoga. It is a 5000-year-old science that must reach every home in our nation. It is a lifestyle. Yoga is the only tool for the management of the post-Covid, though medicine is there only to overcome infections but Yoga helps in rehabilitation and rejuvenation. There are many misconceptions and myths regarding Yoga that needs to be debunked. However, one can practice Yoga at any age. Hence Yoga science says YUVA VRUDHO ATHI VRIDHO VYADHITO DURBALOPIVA! ABHYASATH SIDHIM APNOTHI SARVAYOGESHU ATANTRITAHA. This means from the age of 8 – 10 and above, whether you are healthy or not, or maybe have a disease, still you can practice Yoga to get rid of the symptoms.

**A**s a part of Friday Weekly Webinar held on 4<sup>th</sup> June 2021 an informative session was delivered by Dr. Satish D. Pathak he mentioned Yogic and general tips to prevent the spread of Corona.

## Cause for Spread of Coronavirus

It is a communicable disease and the virus spreads by respiratory droplets released when someone with the virus coughs, sneezes, or breathes. Hence, it transfers from one person to another when the infected person comes in close contact with others. When any virus enters the body then, inflammation takes place. In the nose it is rhinitis, in the pharynx, it leads to pharyngitis which is the sore throat, when it reaches the eyes it leads to conjunctivitis, in the lungs, it leads to acute respiratory distress syndrome (ARDS), pneumonia which is peripheral after ten days. There are dreaded complications of Covid infection which are responsible for every morbidity and mortality i.e., DIC: Disseminated Intravascular Coagulation.

## Cause of Covid-19 infection

During COVID infection patients suffer due to close proximity with the infected patient and if he sneezes then, you are more likely to inhale it and get infected. The second thing is the immunity of the person. A person with low immunity is more likely to get infected with the virus. At the physical level, it affects the nose,

pharynx, lungs, and alveoli. If it is disseminated through intravascular coagulation then, all organs are affected. At the mental level, it creates stress, anxiety, and fear of death in the person.

## Yogic Practice to improve health and prevent Corona

Yoga can be practiced by anyone whether quarantined, isolated, asymptomatic, symptomatic, or with mild-moderate symptoms. However, one with severe symptoms should only go for medical treatment. For the physical improvement of the eyes, nose, pharynx, and respiratory system one should practice jalneti, kapalbhati, ujjayi, suryabhedan, simha mudra, and bhrumari. For physical improvement of the lungs asana such as ardhahalasana, makrasana, bhujangasana, naukasana, shalabhasana, dhanurasana, vakrasana, gomukhasana, tadasana, parvatasana helps in strengthening the intercostal muscles which improve the respiration. To relieve the mental tension, one should practice pranadharana (breath awareness), kriya Yoga which includes anulomvilom for 10 rounds, omkar or amen for 10 times, Gayatri mantra for 10 times, kaivalyadhama technique of meditation.

### Benefits of Yogic Practice

- Yoga improves immunity at a local and general level.
- Improves cellular level health.
- The balance between pro-inflammatory cytokines and anti-inflammatory also improves.
- Psycho neuro immunology helps in enhancing anti-inflammatory response

### Yogic Practices

#### Jal Neti

A neti pot with lukewarm water and added salt is used.

#### Benefit

- Clears the nasal passage
- Reduces nasal mucosa swelling
- Organisms with dust particles thrown out
- Opens up the opening of sinuses in nasal cavity
- Drains the secretion of sinuses and relief from sinusitis

- Help in fresh nitric oxide production
- Improves smell sensation
- Salt act as the antiseptic effect
- Luke warm water keep the warmth in nose and sinuses which helps to kill the organism.

Note: Those having ear drum perforation should not do Jalneti practice.

#### Kapalbhati

One should focus on exhalation only inhalation will happen automatically. Along with the breathing there is flapping of the abdomen as well.

- Elasticity of mucous membrane increases and blood flow increases, resistance power increases
- Cilia and whole air passage are cleaned, all dust particle is thrown out
- As the dust particle along with the organism don't get chance to grow hence prevent disease
- Dust and mucus which gives us suitable media for the development of organisms is not provided.
- Air tubules are opened up to the highest capacity/ cleaned up.
- Toned elasticity is maintained
- All alveoli are kept alert in view of elasticity and tone.

Note: People with high bp, heart disease, abdominal hernia, major abdominal surgery, glaucoma, gastric ulcer, or complicated ulcer pregnancy should avoid kapalbhati practice

#### Dhyana (Meditation)

Healing starts taking place in the body when a person is aware of each and every part of the body. As the body heals on its own, this develops self-confidence and increases positive thinking. Omkar is practiced to keep the mind thoughtless however, science says one cannot keep one mind thoughtless for more than six seconds i.e., if one is awake for 15 hours then a maximum of one and half hours person can keep his mind thoughtless else, he will either be thinking of past or future. The past or future analysis leads to the problem. One can make his mind thoughtless then it activates the belief system then, the healing system start working, because of this, the body mobilization

starts to take place in such a way that the body heals on its own. The alpha waves are generated when a person chants omkar. The sympathetic activities start reducing and parasympathetic activities increases which makes the mind more tranquil.

### Gayatri Mantra Gayatri

Mantra is praying for Sun to give the energy. This energy helps to vitalize the system.

### Pranayama

Surya bhedan, Simha mudra, and Bhramari are also very helpful in increasing our immunity. Simha mudra will contract the muscle around the pharynx. This helps in increasing blood circulation around the pharynx. If any organism is there then, it will be killed by the white blood cells present in our blood. The bhramari helps in increasing the nasal nitric oxide which is most likely to a rapid washout of sinus nitric oxide caused by the oscillating sound waves. This nitric oxide helps to reverse pulmonary hypertension, improves severe hypoxia and shortened the ICU stay, and increases the survival rate.

### Other Causes of Corona

Apart from the infection, there are some other factors as well which can cause the disease such as a change in the atmosphere, change in food habits, junk packaged food, change in lifestyle, no health awareness, not

caring to the family members and not able to give time to the family, being on mobile most of the time, etc.

### Day-to-day tips to prevent the infection

There are several symptoms one must take care of which can act as the sign of the infection. These symptoms include a running nose, sore throat, fever, cough, loss of taste, smell, breathlessness, severe body ache, general weakness, any other unknown symptom, etc. In order to overcome the possibility of infection, one can take the steps such as handling the situation calmly, getting the RTPCR test done, consulting the doctor, during the time of any above-given symptom then, isolating yourself or home quarantine, practicing Yoga, taking medicine advised by the doctor, keeping the close watch on the further symptoms, washing and sanitizing the hands when entering the home from outside, wearing the mask whenever outside, do not enter the working area if the place is not sanitized, etc.

### Conclusion

In the current situation of Covid -19 pandemic, it is important to make Yoga a part of life. As Yoga plays a very significant role in preventing infection by strengthening the immunity of the person and also helps in the rehabilitation in post-Covid. Hence, Yoga should be adopted as a lifestyle to protect ourselves and our families from the virus. ■



The image has been taken from "Yogic and General Tips to Remain Away from Corona" online webinar



**Priya Ranjan**  
Professor

Department of Electronics and  
communication Engineering,  
SRM University, Amaravathi.

# Intelligent Decision Support Systems as a Platform for Sustainable Healthcare

Dr. Priya Ranjan is a Professor in the Department of Electronics and Communication Engineering, SRM University, Amaravathi. He graduated from IIT Kharagpur (EE, 1997), West Bengal. In particular, his emphasis is on developing software tools for affordable early detection of different reproductive cancers, heart malignancies, and mental anomalies using EEG and ECoG signals. He has also written a search tool for exploring Ayurved-related documents under a DST.



**Dr. Rajiv Janardhanan**

Director and Head,  
Amity Institute of Public Health,  
Professor of Amity Centre for  
Vascular Biology  
Amity University, Noida, U.P.

Dr. Rajiv obtained his Ph.D. from the University of Delhi in 2003 with a specialization in the areas of microbial ecology and bioprospecting. Subsequently, he went to premier institutions such as Mayo Clinic(Rochester) in the United States for advanced training in interdisciplinary areas of signal transduction pertaining to in vitro and in vivo studies on unmet clinical needs. He joined Amity University in 2012 as a professor at the Amity Institute of Biotechnology and since 2014, he is heading the Amity Institute of Public Health. His research is currently funded by the Department of Biotechnology, Government of India, and the Indian Council of Medical Research, Government of India.

## Abstract

India is a vast country with complex socio-economic characteristics that are reflected in its medical systems. These include an insufficient number of primary care doctors practicing in rural and semi-urban areas and consequently about 70% of the population that live in rural areas, in particular, has limited access to adequate health care. This is a matter of grave concern as Health in India stands at a paradoxical juncture. It is believed that the use of Information and Communication Technologies (ICT) for health has the potential to improve all these areas, that is facilitate access to quality health care and to health information.

## Introductory Remarks

Director MDNIY conveyed that COVID scenario has stated it clear, that it is not just a single epidemic but a condiment of two epidemics i.e., the epidemic of non-communicable diseases such as heart disease, stroke, cancer, diabetes, and chronic lung disease which are responsible for the majority of deaths worldwide. Most of the population of India (70%) is residing in rural areas with limited excess to adequate health care and

out-of-pocket expenditure constitutes 80% of the total healthcare spending in India. The community-based evidence is lacking as the policy decision maker are not equipped enough to give a rational approach.

An elaborative lecture was delivered by Dr. Priya Ranjan and Dr. Rajiv Janardhanan wherein they highlighted and discussed the relevance of Intelligent Decision Support Systems on 11<sup>th</sup> June 2021.



## Importance of Intelligent Decision Support Systems

- It is important to meet the challenge for the future sustainability of healthcare systems
- Constrained budgets and the rising cost of advanced medical treatments are the major reasons.
- There is an increase in complexity and costs of delivering healthcare to all the stakeholders for Sustainable Healthcare. Before understanding the decision that can be beneficial and can act as the support system for sustainable healthcare, one must look into the income support of that country.
- Increased expectations and demand for better quality patient-centered healthcare.

## Big Data Analytics

It is a tool for “Ergonomic Policy Interventions”. The development of community-specific policy interventions will empower the community and eliminates healthcare disparities.

## AI Precision Medicine

The transition of precision medicine to the data-centric community level should be AI enabled for public health such that it has to be technologically mediated which

is not associated with energy efficiency and does not contribute to global warming.

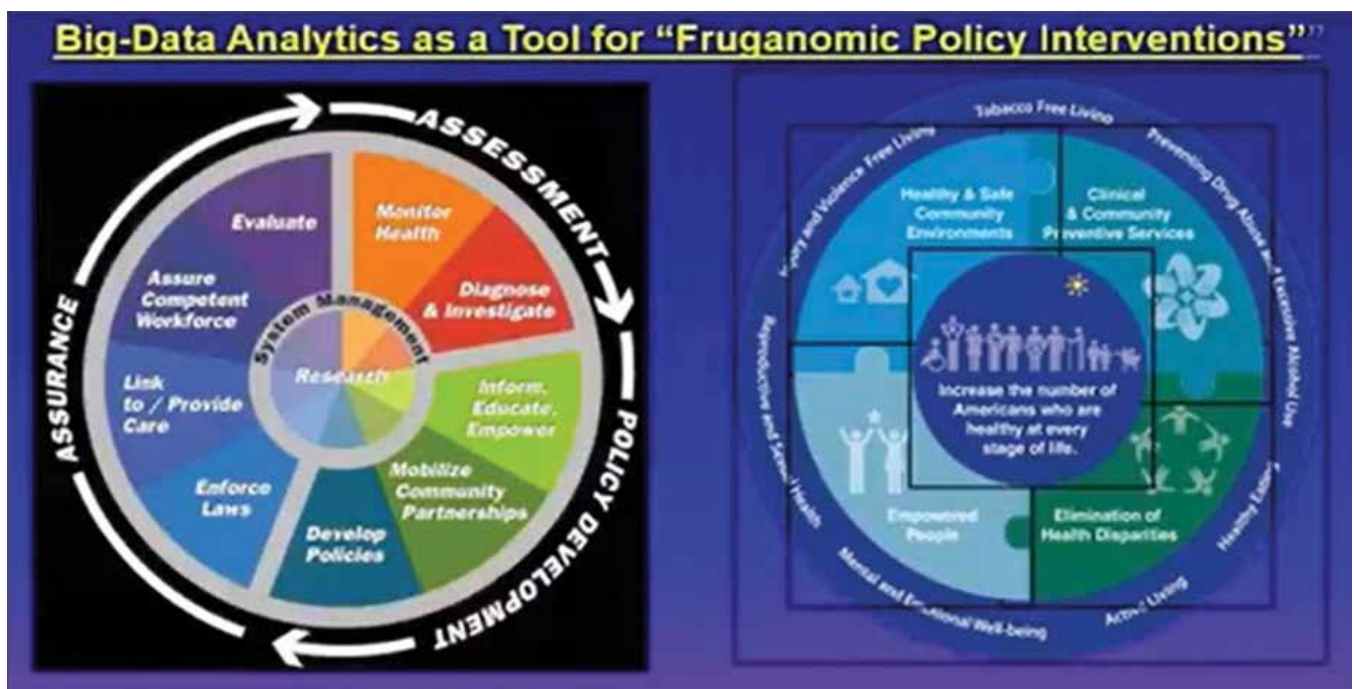
## Community-Based Intervention

In addition to BMI, BP, ECG, Blood sugar, and other parameters for healthy persons was also evaluated using nonlinear predictive analysis through randomly screening 500 people from the slums of Sangam Vihar. The study revealed that obesity is the disease driver wherein 29.1% were healthy and 71% were having the risk factors which contribute to cardiovascular events based on the data. Also, obesity is no longer the disease of the rich, it exists in the lower section of society as well.

Points to remember from the evidence are to build a device diagnostic system over colposcopy images using data collected for Indian patients and data collection and algorithmic system integration for facilitating faster clinical diagnosis will be of great help.

## Promotion of Health Literacy

Education is a foundation stone for the development of a country. Education does play a very important role in society. The more the people are literate and aware more the society will progress and prosper.



## Privacy and Security as Priority for Digital Health Platforms

Privacy of the data is the foremost priority. This can be done by increasing security in terms of encryption. The steps that include increasing work on increasing security are as follows -

1. TOR Browser: Use of the TOR browser for host security for scrambling host addresses.
2. ENCRYPT: Use a strong encryption algorithm like Elliptic curved-based encryption.
3. Privacy: one should keep the data private and should not share medical problems on social platforms.
4. Upgrade: Software and Hardware should be upgraded from time to time.

## Conclusion

Diversity of the staff plays a vital role in strengthening the system. Staff with divergent competencies such as physicians, surgeons, biomedical science, engineering sciences, health sciences, psychological sciences, mathematics and statistics, computer professionals, and management graduates, together make it easy to establish new paradigms for community-based healthcare.

## Use of Modern Technology

There should be an approach to merging the ancient Indian clinical system with modern technology. The following steps will be helpful: -

- Basic Search Engine in Hindi/Sanskrit/English language
- There should be clinical rules
- Patient/Clinical friendly interface
- A data based on the ancient text-based listing of diseases and cures. Example: CharakSamhita

## Knowledge Base

Yoga means union and it deals with harmonizing the mind, body, and soul. Ayurveda works on physical and mental well-being through a balanced diet and lifestyle changes. The ancient text contains the prescriptions and knowledge for wellness such as Sushrut Samhita, Charaka Samhita, and Ashtanga Sangraha.

## Management and Compilation of Ancient Knowledge

The compilation of ancient knowledge is an important aspect. It can be done in the following ways:

- Keeping original text corpus
- Managing search interface
- Interaction between Vaidya and patients
- Maintaining chemical herbs pricing inventory

## Search Interface

- Convenience of searching the topic of interest by the user/patients
- System should provide related search items
- Should reach correct diagnosis and cure in collaboration with the user

## User Interface

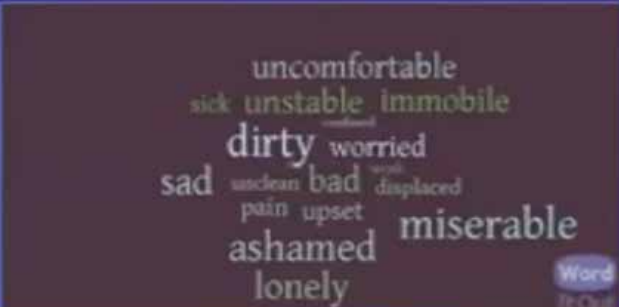
- Easy use for delving into complicated ancient text
- Help user in formulating question correctly
- Future development can send queries to experts around the world for better diagnosis.
- Sharing of the case studies of similar patients to help unfold the problems

## Analogy with a compilation of pathology reports


- Reporting of outcomes of various tests and related disease information should be included
- Statistical study of the correlation between test results and occurrence of sudden malady should be maintained
- Enfoldment of the network of disease and test from a large number of pathological report
- Provide comprehensive determination of underlying causation and related cures.



**Promotion of Health Literacy**  
**Promotive Health Literacy Drives for Adolescent Girls on Menstrual Health**



**A Lonely War**



**To Empowering, Positive & Powerful Outcomes!**

**Educating Young Women to Effectively Deal With Stigmas & Taboos Associated With Menstrual Hygiene: !**

**"You educate a man; you educate a man.  
 You educate a woman; you educate a generation."**  
**-Brigham Young**

**Conclusion**

Technological advancement is important, however, it also raises one of the most important ethical dilemmas of giving our lives in the hands of digital computers

or machines. This dependency questions the trust of whether computer judgment is more reliable than the prescription of the doctor and raises an ethical dilemma. ■



*The image has been taken from "Intelligent Decision Support Systems as a Platform for Sustainable Healthcare" online webinar*



**Dr. Ratnabali Chakravorty**  
Consultant- Obs. & Gyne,  
Infertility Specialist and Director,  
MAGS Medicaland Research  
Centre

# Obesity and PCOS

Dr. Ratnabali Chakravorty has completed her M.B.B.S and D.G.O from Medical College in Kolkata. She further expanded her specialization by attaining her M.D in Obstetrics & Gynaecology from Medical College, under University College of Medicine. She also completed her FICMCH in the year 1998. She has dedicated more than 32 years practicing as a Gynaecologist and her work profile reads of her as having started her career as a Medical Officer at Calcutta Port Trust Hospital since then she has worked her way to becoming a successful Consultant in Obstetrics & Gynaecology. Her passion for work and sincerity towards helping her patients has won her numerous awards and medals. She has been the recipient of Green Armytage Price in Clinical Gynaecology and Obstetrical Pathology 1979-80, Orilla Silver Medal in Forensic and State Medicine, and many more.T

## Abstract

Polycystic ovary syndrome (PCOS) is a common female condition typified by reproductive, hyperandrogenic, and metabolic features. Polycystic ovary syndrome is a genetic condition, exacerbated by obesity. The most preferred and effective method of treatment of PCOS is lifestyle modification. Weight loss is an important treatment strategy.

## Introductory Remarks

Director MDNIY shed light on Polycystic Ovary syndrome which is a genetic disorder. Obesity plays a central role in the development of PCOS, as many women with this condition are reported to be overweight. Depression, anxiety, and sleep apnea often occur due to obesity. Women suffering from sleep apnea are prone to have heart attacks and strokes in the future and even the chances of Asthma and heart disease and many other diseases are more in women who are obese.

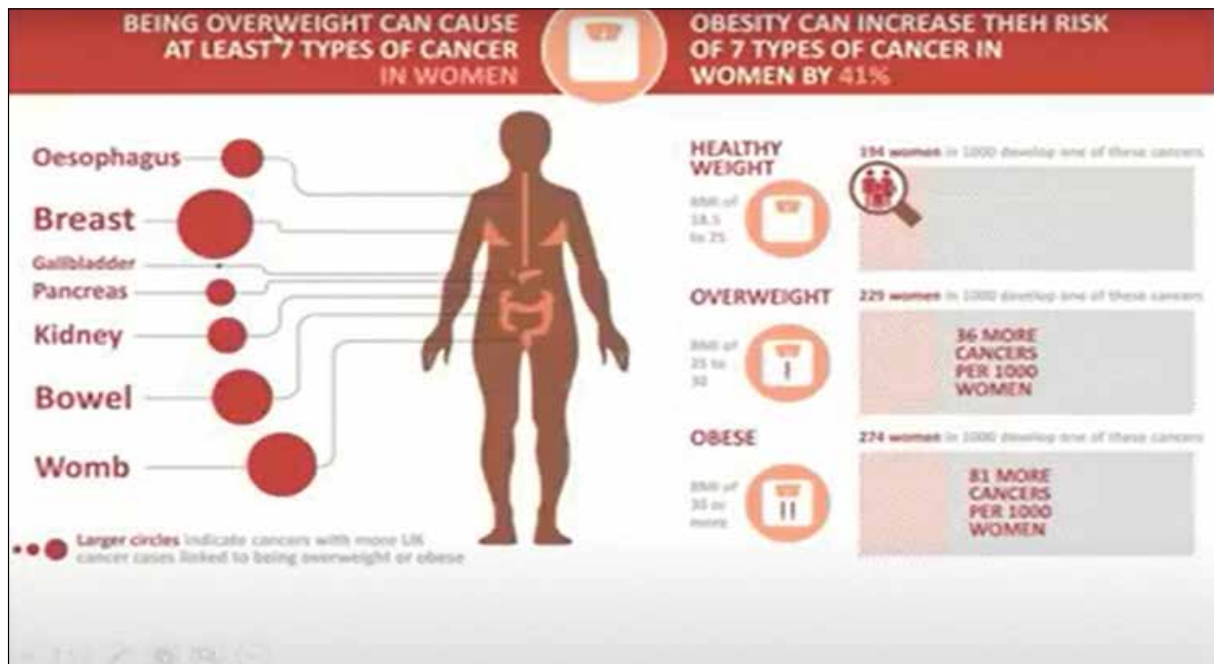
**D**r. Ratnabali Chakravorty discussed the causes and preventive measures of Obesity and PCOS as a part of Friday Weekly Webinar held on 18<sup>th</sup> June 2021.

## Obesity harms adults

Obese people are less likely to be employed as no employer wants a 100 kg person and give lesser return to the company and even if they are discriminated against by the general population and stigmatized, they have an increased risk of hospitalization. Obesity reduces life expectancy by an average of 3 years and severe obesity reduces it by 8-10 years. Obesity increases and oils on the third level are to be eaten moderately, and at the apex, highly processed foods high in sugar and fat are to be eaten sparingly.

## Types of Obesity

Obesity is of different types, one is “Apple type” and the other is “Pear type”. Women mostly have pear-type obesity, which means they mostly have fat on the lower abdomen, thighs, and buttocks. In Apple type obesity there is more fat in the upper abdomen, which increases the chances of heart attacks, also known as androgenic fat. Females suffering from PCOS mostly have apple-type Obesity.



## Diet

India uses a number of graphical elements to represent the messages of its guidelines, one of them being a food pyramid. The pyramid is divided into four levels of foods according to recommended consumption: cereals and legumes/beans at the base should be eaten in sufficient quantity, vegetables and fruits on the second level should be eaten liberally, animal source foods and oils on the third level are to be eaten moderately, and at the apex, highly processed foods high in sugar and fat to be eaten sparingly.

## Stop rethinking your drink and go on green

Many people don't realize how much sugar and calories are in common beverages. Sugar-sweetened beverages, like soda and flavored drinks, are now the largest source of added sugar in Americans' diets and can account for a large percentage of a person's daily calorie intake. Choosing the right beverage is important to maintain a healthy diet and staying hydrated and energized. This traffic light system is a guide to help you choose healthy beverages. Cutting back on RED drinks and substituting them with GREEN drinks can help prevent unhealthy weight gain.

## PCOS (Polycystic ovary Syndrome)

More than 7 million women suffer from PCOS in India today. In PCOS due to hormonal imbalance, ovulation

(release of 1 egg out of 30 to 40 eggs that grow every month in the ovaries) does not take place; this gives rise to water-filled balloon-like structures in the ovaries (cyst). The ovaries with a lot of cysts are called Polycystic ovaries.

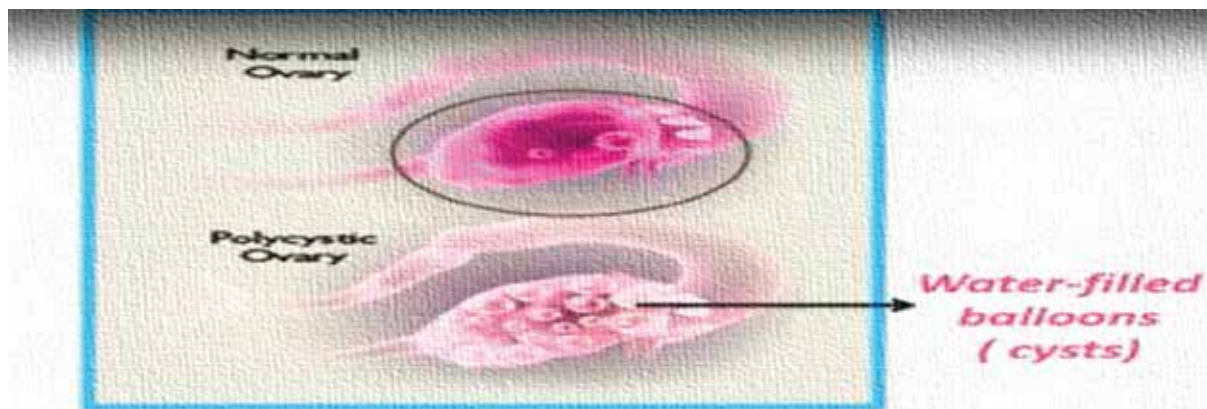
## Cause of PCOS

The factors that cause PCOS are insulin resistance and increased levels of hormones called Androgen.

Women with PCOS are often insulin resistant; their bodies can make insulin but can't use it effectively, increasing their risk for type 2 diabetes. Insulin is the hormone produced in the pancreas that allows cells to use sugar, the body's primary energy supply. If your cells become resistant to the action of insulin, then your blood sugar levels can rise and your body might produce more insulin. Excess insulin might increase androgen production, causing difficulty with ovulation.

Higher levels of androgen lead to unwanted hair growth, acne and pimples, and oily skin, and also alter the lipid profile. Loss of hair occurs leading to baldness. It also increases the risk of heart disease.

Anovulation leads to irregular menstrual periods which may be heavy and may lead to infertility. In later life thickening of the lining of the uterus increases and may result in cancer of the lining of the uterus in some cases.



Long-term risk factors include high blood pressure, high cholesterol, higher risk of miscarriage in pregnancy, later they may develop gestational diabetes and there are more chances of cesarean section.

### Role of Exercise Yoga and Diet in PCOS

Treatment of PCOS must focus both on normalizing short-term signs of hyperandrogenism and anovulation and on reducing metabolic complications. This can be achieved through pharmacological intervention or preferably lifestyle modification. The most preferred and effective method of treatment of PCOS is lifestyle modification. Weight loss is an important treatment strategy.

The Speaker said the women suffering from PCOS should take small meals so there is less secretion of Insulin and should reduce excess salt intake, oily/fried food, and carbonated drinks in their diet, as they are at risk of various heart diseases. A daily activity like jogging, brisk walking, and Yoga will surely help to regain a healthy state of body and mind and also reduces the various risk factors.

### Conclusion

PCOS is a hormonal disorder causing enlarged ovaries with small cysts on the outer edges. Lifestyle modification incorporating proper diet, physical activity, and practicing Yoga is the key to preventing PCOS and its risk factors. ■



The image has been taken from "Obesity and PCOS" online webinar



**Dr. Usha Panjwani**

Scientist 'G',

Department of Neurophysiology,  
Defence Institute of Physiology and  
Allied Sciences,  
DRDO, Delhi

# Meditation and Brain Function

Dr. Usha Panjwani is a Scientist, and Neuro-Physiologist working at DIPAS, DRDO. She has done graduation and masters from AIIMS New Delhi and a doctorate from Delhi University. As a professional, she is leading research in life sciences for defence application. She has made significant contributions in the area of sleep and cognitive function in stressful environments, especially at high altitudes. Her research has made an impact on the formulation of strategies for the maintenance of cognition during sleep deprivation and other stressors in the armed forces. She has published widely in international and national peer-reviewed journals and book articles.

## Abstract

Yoga practice is effective for disorders related to stress, sleep, and cognitive functions. The role of Yoga and meditation in optimizing sleep architecture and cognitive processes leading to optimal brain functioning in normal and diseased states is discussed. Mental health in the COVID pandemic and the role of meditation are also highlighted.

## Introductory Remarks

Director MDNIY explained Yoga as an ancient Indian science, philosophy, and way of life, which has become popular worldwide. Yoga practice significantly, and meditation have helped people in overcoming stress and maintaining mental health.

**D**r. Usha Panjwani discussed about meditation and brain function as a part of Friday's Weekly Webinar held on 25<sup>th</sup> June 2021.

Yoga is a 5000 years old science and was founded in India. The word Yoga means "yoke" or "unity" which is translated from Sanskrit (the classical language of India). It also means "discipline" or "effort". There are different types of Yoga such as Hatha, Kriya, Dhyana, Bhakti, Karma, Jnana, Raj, Japa, Mantra, etc. Yoga helps in enhancing physiological function, psychological function, neuro-endocrine function, and psycho-somatic diseases. Yoga harmonizes body physiology by optimizing ANS activity and also leads to physiological and psychological well-being.

There are two natural responses whenever a person encounters any stressful situation i.e., fight or flight. Whether you fight or flee, your sympathetic system will be on overdrive pumping out neoendorphin. The physiological effects of this process are detrimental. Our nervous system particularly the autonomic nervous system determines the various changes in the body. This autonomic nervous system is further divided into parts as the sympathetic and parasympathetic nervous systems. These two nervous systems lead to physiological arousal and relaxation in the body respectively. The changes in the body due to sympathetic and parasympathetic nervous system are as follows: -

## Techniques to Modulate the Brain Function

Technique such as biofeedback, cognitive retaining, hypnosis, progressive relaxation technique meditation, etc can be useful to enhance brain function.

One of the forms of meditation is focused meditation in which you direct your awareness onto something. It

can include the picture of the deity, a universal principle such as compassion or forgiveness, or a syllable such as an om which is the famous universal mantra.

## Sleep

Sleep has a profound impact on a person's cognitive ability and how his brain functions. It is a naturally recurring state of mind and body, characterized by altered consciousness, relatively inhibited sensory activity, reduced muscle activity and inhibition of nearly all voluntary muscles during rapid eye movement (REM) sleep, and reduced interactions with the surroundings. It is distinguished from wakefulness by a decreased ability to react to stimuli but is more reactive than coma or disorders of consciousness with sleep displaying very different and active brain patterns. Sleep is divided into-

### 1. Non-REM Sleep (NREM)

- S1. Light sleep: EEG shows low amplitude, and fast activity, and EMG shows muscle tone.
- S2. Sleep spindles, muscle tone maintained.
- S3 and S4: Deep sleep, EEG shows high amplitude, slow activity, EMG shows hypotonia.

Note: Genesis of NREM Sleep includes the Diencephalic sleep zone, medullary sleep zone, and basal forebrain sleep zone.

### 2. REM Sleep

- Dream Sleep
- EEG shows beta activity like awake

Note: Genesis of REM Sleep includes Ponto -genicular -occipital brain waves.

There is different sleep requirement at different age which will help in enhancing the functioning of the brain.

Functions of Sleep are as followed: -

- Restorative: Anabolic, Replenishes ATP
- Consolidation of Memory
- Secretion of Hormones during NREM sleep: Growth hormone, prolactin etc.
- Thermoregulation

- Metabolic caloric balance
- Immune competence

To maintain good sleep, one should have sleep hygiene which includes

- Regular sleep schedule
- Daytime sleep/Nap with care
- No exercise close to bedtime
- No intense mental activity close to bedtime
- Limited exposure to the light and noise in the hour before sleep
- Avoiding alcohol, nicotine, caffeine, and other stimulants in the hour of before bedtime
- Creating the conducive sleep environment Sleep plays an important role in the cognitive function
- Sleep has a role in the brain maturation and development
- Sleep maintains cognitive function such as learning and necessary consolidation
- New learning and its consolidation i.e., formation of long-term memories is attributed to REM sleep: Relationship between duration and depth of REM sleep and cognitive functioning.
- Sleep spindles occurring in stage 2 sleep are associated with verbal memory retention which is correlated with an increase in the number of sleep spindles.

Yoga plays an important role in improving sleep and cognitive function in health and disease. Yoga helps in:

- Optimize sleep architecture and cognitive function in young and olds.
- Lead to optimal brain functioning in normal and diseased state
- Changes in autonomic function
- Structural changes in brains
- Changes in metabolism
- Changes in neurochemistry
- Improved functional brain network connectivity in key regions of the brain.

## Sleep deprivation, Cognitive Function, and Meditation

- Sleep deprivation affects various categories of professionals which including industrial shift workers, medical workers, armed forces, trans meridian pilots, call centre employees, telecom workers, truck drivers, etc. This insufficient sleep can affect the person in various ways such as irritability, cognitive impairment, memory lapse, and loss, impaired moral judgment, severe yawning, hallucinations, symptom similar to ADHD, impaired immune system, risk of diabetes type 2, increased heart rate and risk to cardiovascular diseases, decreased reaction time, tremors, aches, other factors such risk of obesity, decreased temperature, growth suppression, etc.

## Meditation in Neurological Disease

### Epilepsy

It is a disorder of the brain characterized by seizures accompanied by neurological, cognitive, psychological, and social changes. 0.5% of people in the world suffer from epilepsy. Epilepsy is of various types such as absence, tonic-clonic or convulsive, atonic, clonic, tonic, myoclonic, etc.

### Drug-Resistant Epilepsy

- Drug-resistant epilepsy with uncontrolled severe

seizures is a major clinical problem.

- Current antiepileptic drugs do not seem to prevent or reverse drug resistance in patients.
- 30% of epileptics are drug resistant.

Meditation plays a vital role in the management of this disorder.

## Post-Covid rehabilitation and the role of Meditation

To manage stress, anxiety, and depression one should do meditation, increase the quality of sleep, exercise daily, and enhance daily activity. To manage problems in attention, memory, and logging one should do meditation, and do brain exercises such as new hobbies, puzzles, and games, one should prompt itself with alerts and alarms as reminders, and one should break down activities into steps to avoid feeling overwhelmed.

## Conclusion

Meditation is an effective tool for harmonizing brain function in normal individuals, as well as under stressful situations and in some pathological conditions. ■



The image has been taken from "Meditation and Brain Function" online webinar



**Dr. G. K. Pal**

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# Role of Pranayama in Health and Disease

Dr. G. K. Pal is an MBBS, M.D. (Physiology), Ph.D., D.Sc. He has Post-PG Teaching Experience for 31 years, Research Experience for 35 years, and Administrative Experience for 15 Years. His Field of Research includes Neurophysiology, Hypertension, Diabetes, HRV, Baroreflex sensitivity, and Yoga.

## Abstract

Pranayama, a branch of Yoga practice is hugely beneficial to mankind in maintaining sound physical and mental health. Breathing occurs automatically without awareness. However, Pranayama is a process of deep breathing which increases the vagal tone and helps in maintaining our health. Pranayama improves heart rate variability (HRV), cardiorespiratory functions, autonomic functions, metabolic processes, and all visceral functions.

## Introductory Remarks

Director MDNIY discussed the significance of Pranayama. It is a process of deep breathing which increases the vagal tone and helps in maintaining our health. Pranayama improves heart rate variability (HRV), cardiorespiratory functions, metabolic functions, and all visceral functions. Pranayama is generally defined as Breath Control. It consists of two words “Prana” and “Ayama”. Prana means vital energy or life force closely related to breathing but not just a breathing exercise to introduce more oxygen into the body. Pranayama promotes the flow of Prana (Energy) in the Nadis (Energy Channels) of the Pranamaya Kosha (The Energy Body). Ayama means extension or expansion which is an expansion of the dimensions of prana. Pranayama is the method in which life forces can be activated and regulated beyond the boundaries to attain a higher state of energy.

**D**r. G.K Pal gave an elaborative lecture wherein he discussed about the mechanism of Pranayama and its effect on our body in the Friday Weekly Webinar on 2<sup>nd</sup> July 2021.

## The yogic framework of the human body

In Physiology of Yoga, the human framework consists of three bodies having five sheaths (Koshas). The three bodies are Physical, Astral, and Causal Body the physical body is Annamaya Kosha (The material or physical body). The “Astral Body” consists of Manomaya kosha (the mental body), Pranamaya kosha (Vital energy or the pranic body), and Vijnanamaya kosha (The Psychic body). The Causal body consists of Anandmaya kosha (the transcendental or bliss body). Pranayama works mainly in the pranic body (pranamaya kosha or vital energy body).

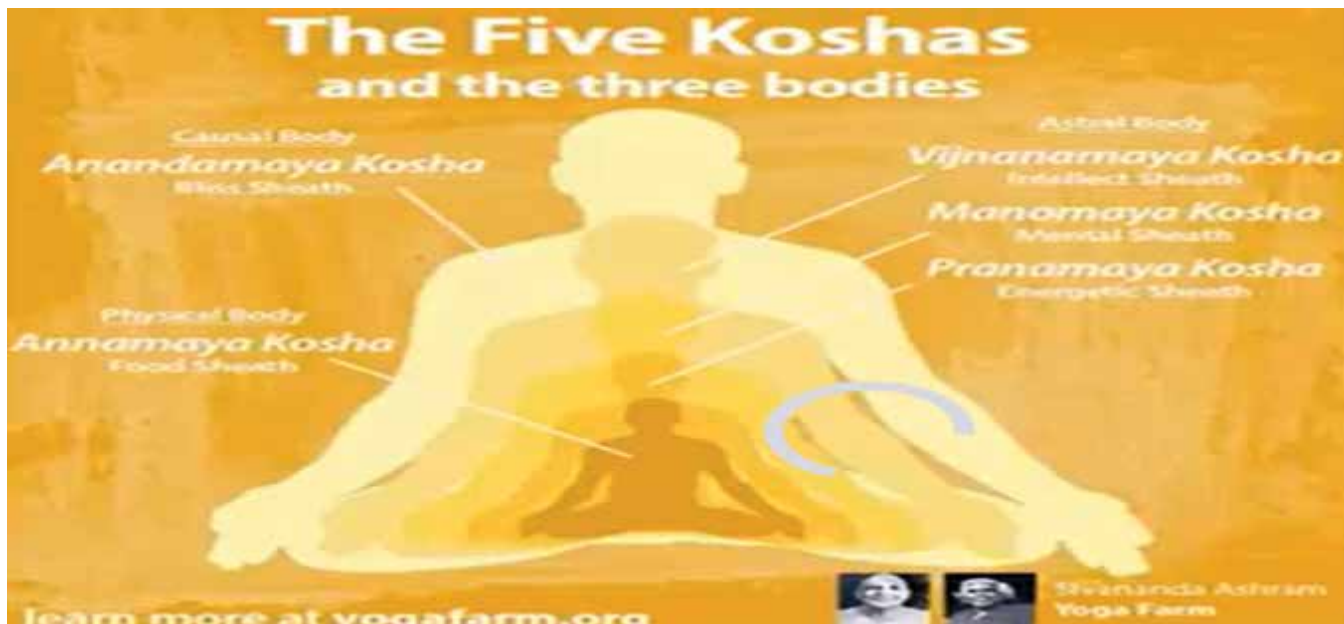
## The Pranic Body

Pranayama Kosha is the pranic body. It is made up of five major pranas. i.e. Prana, Apana, Samana, Udana, and Vyana designated as panch prana.

As mentioned in ‘Hatha Yoga Pradipika’ pranayama influences the Prana (center of the body). It kindles the vital- energy that flows to the entire body and illuminates it. Pranayama brings control to breathing and activates the life force that goes beyond the boundaries of one’s normal limitation and attains a higher state of vibratory energy. To understand the physiology of pranayama,





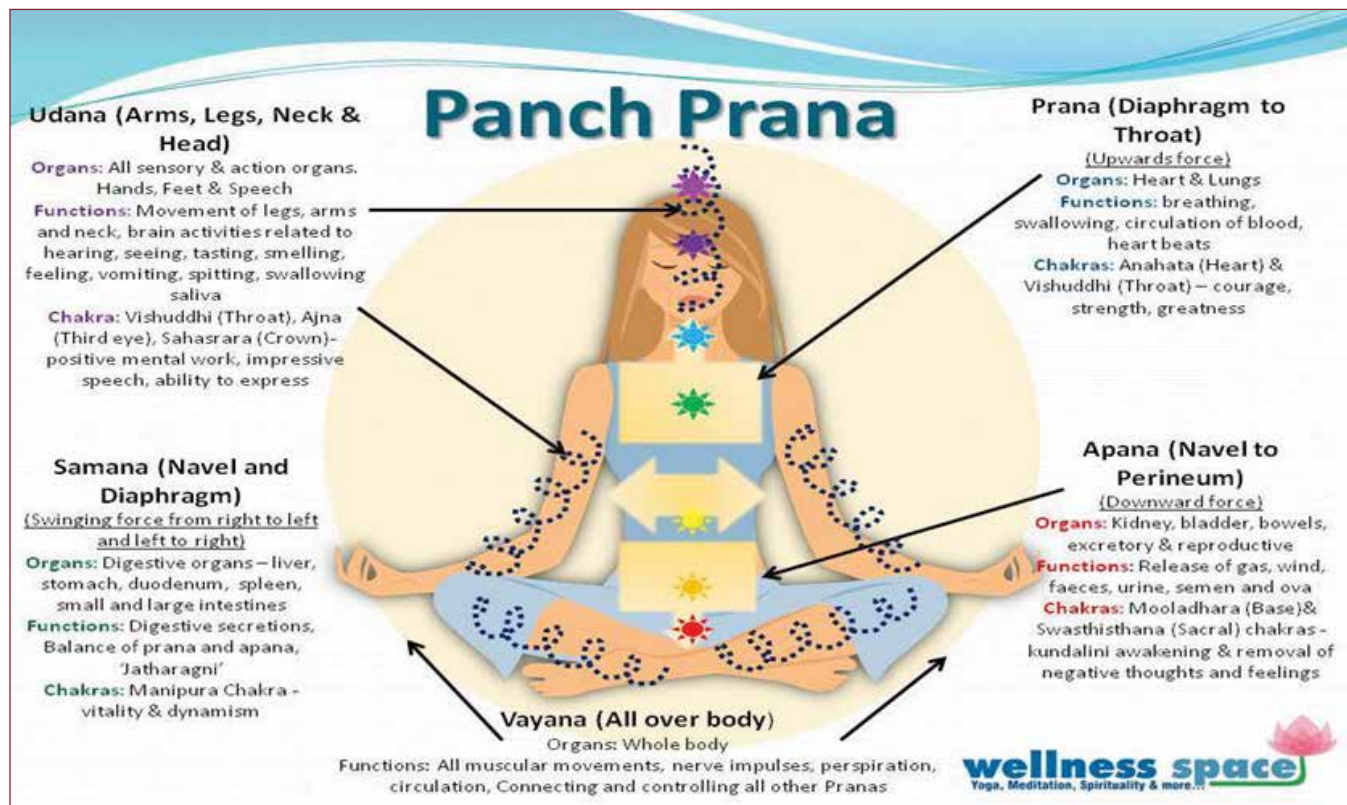


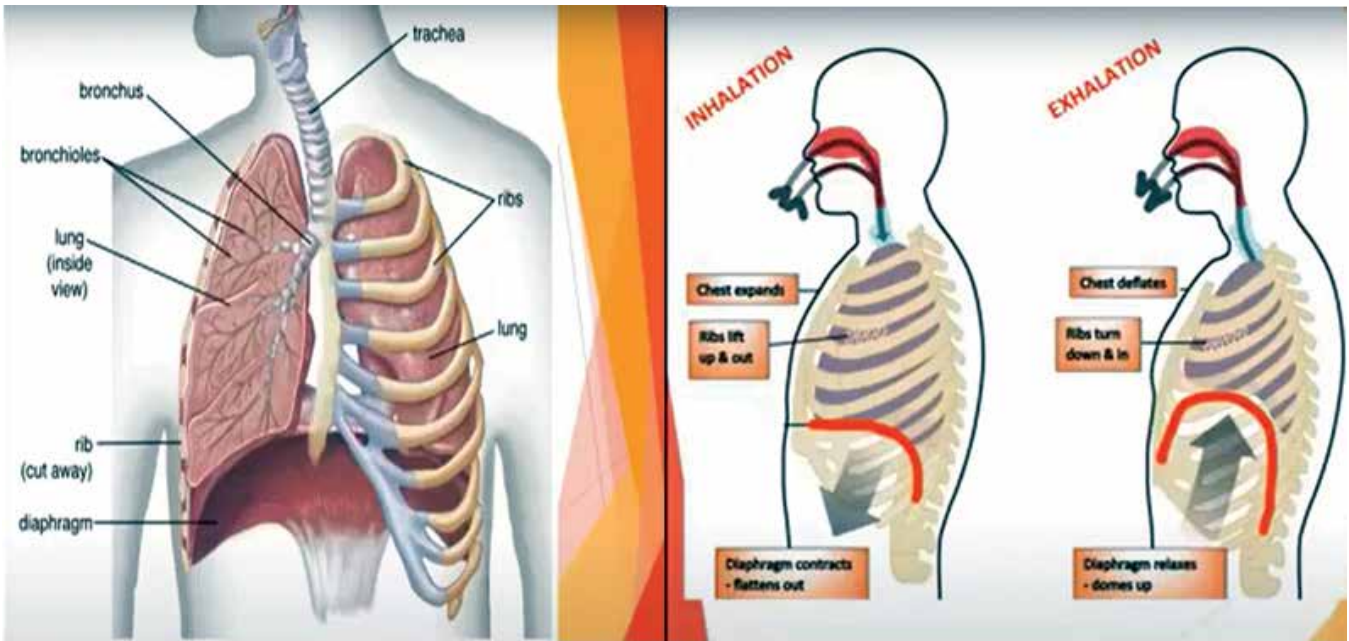
first, we should understand the physiology of normal breathing.

### Normal Breathing

Breathing occurs automatically without awareness and

the normal breathing rate is between 12 to 18 beats per min in adults. Usually, normal breathing is shallow and it has been observed that many people breathe incorrectly. Here the question arises that how people do it incorrectly when it is a spontaneous function of the body.





## Components of breathing

Breathing is a function of the respiratory cage or respiratory apparatus that consist of the Diaphragm (lower part of the cage), Chest wall having rib and intercostal muscles (Side of the cage), Clavicle (in the upper part of the cage).

Expansion of the thoracic cage during inspiration decreases the intrathoracic pressure and the air is sucked into the respiratory tube. The more the expansion, the more the air enters the lungs.

## Breathing Process

As we breathe air first fills the respiratory tubes. This air is called Dead Space Volume, as it does not reach alveoli for gas exchange, which is around 150 ml. The breathing of air above this volume is functional.

Normal breathing is shallow breathing. At rest, tidal volume is about 250 to 300 ml. Thus, in normal (shallow) breathing less than 300ml is breathed in out of which 150 ml remains in the dead space and less than 150 ml is available for oxygenation. Air does not reach deeper parts of the lungs, and does not facilitate much oxygenation of the organs.

Due to inhalation and exhalation of small volumes, germs tend to accumulate in the lower part of the lungs. Shallow breathing leads to insufficient oxygenation of the body causing functional disturbance and illness.

After explaining the concept of normal breathing, the Speaker further explained the process of breathing in Pranayama where he said that Pranayama is a process of slow and deep breathing. In slow and deep breathing, the chest is more expanded and the tidal volume is 500 ml. Thus 350 ml is available for oxygenation (dead space volume is 150 ml not utilized).

Apart from the more amount of oxygen delivered, the time required to transfer oxygen from the lungs to blood and Carbon dioxide from the blood to the lungs is more. This result in more oxygenation and more removal of toxic substances and also helps in maintaining tissue metabolism and healthy organ functions.

In slow and deep pranayama breathing all three parts of the respiratory apparatus are effectively used in the breathing process. The lower part (Diaphragm and abdominal wall): Abdominal breathing, the middle part (Thoracic cage with ribs and intercostal muscles): thoracic breathing, and the upper part (Clavicle & upper ribs): Clavicular breathing. This is a three-step process involving parts in succession.

## Abdominal breathing

It is associated with the movement of the diaphragm and outer wall of the abdomen. During inhalation, the diaphragm is flattened, moves downward, compresses the abdominal organs, and enlarges the chest cavity downwards. this draws the greatest amount of air.



## Thoracic breathing

It occurs by movement of ribs. The rib cage moves outward and upward by contraction of intercostal muscles and increases the thoracic cage volume.

## Clavicular Breathing

It is achieved by raising the shoulder and collar bone. This requires more effort to increase air entry. Clavicular breathing is nil in normal shallow breathing. In Yogic Breathing (Dhirgha Pranayama), the three components, the lower (abdominal), middle (thoracic), and upper (clavicular) are brought into a harmonious movement for maximum inhalation and exhalation of air.

## Types of Pranayama

Pranayama is traditionally divided into 2 categories that are fast and slow Pranayama. Kapalbhata, bhasrika and moorcha comes under fast pranayama. Sahaka (Sukha), Anulom Vilom, Chandranadi, Bhramari, Sheetal, Sheetkari, Ujjai, Surya Bheda are slow pranayama.

## Four Steps of Pranayama

Pooraka or Inhalation, Antar Kumbhaka or internal breath retention, Rechaka or exhalation, and Bahir Kumbhaka or external breath retention are the four steps involved in pranayama practice.

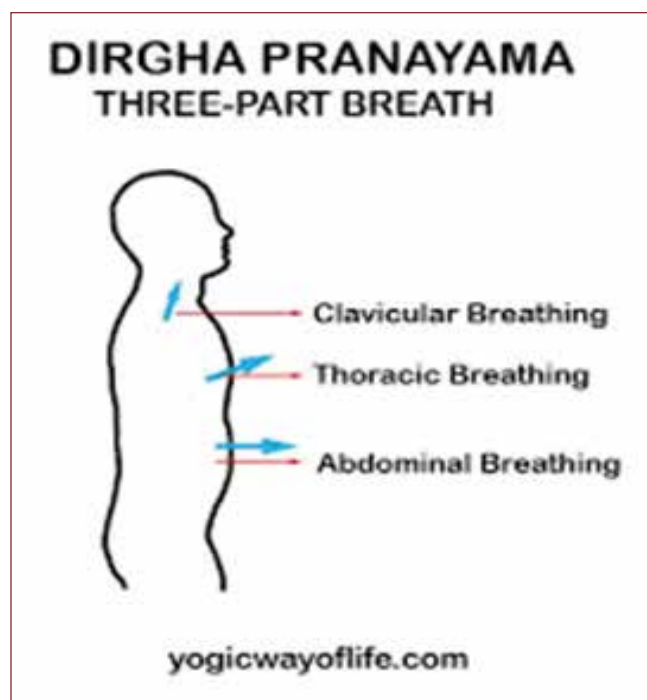
## Kumbhaka

Most important part of pranayama is Kumbhak, the retention for the beginners, only slow inhalation and exhalation are done, and importance is not given to kumbhaka (retention). With training, slow retention is incorporated into the practice. Gradually the duration of Kumbhaka is increased.

Four Physiological aspects of Breathing in Pranayama are slow breathing, deep breathing, retention of breathing (Kumbhaka), and prolonged expiration (More duration of Rechaka) are four physiological aspects of breathing in Pranayama. The normal breathing duration of exhalation is less than 50% of inhalation and the ratio of inhalation to exhalation is 1:0.05 or less. In Pranayama Breathing, the duration of exhalation is increased, initially, the ratio is kept at 1:1.

## Pranayama is Slow Breathing

Normal rate of respiration in adults is 12 to 18 per min (average of 15 breaths/min). Thus, the duration of each cycle is approx. 4 seconds (about 2.5 seconds inspiration and 1.5 seconds expiration).



In Pranayama if inspiration is 5 seconds and expiration is 5 seconds then each respiratory cycle will be 1 second, controlled to the rate of breathing of 6 breathing per minute. One major aspect of pranayama is to make breathing slow and reduce the frequency. With mastery (control) on pranayama practice, it is further reduced to 4 or even 2 breathing per minute.

### Pranayama is a process of deep breathing

Normally inspiration is an active process and expiration is a passive one. Chest expiration is usually mild(ineffective). In Pranayama, inspiration is made more active with complete involvement of all three parts abdominal, thoracic, and clavicular components. Chest expansion is made very effective. It becomes deep breathing.

Pranayama is a slow process mainly due to the increased duration of expiration. In the early part ratio of inspiration to expiration in pranayama is 1:1 and in the later part duration of expiration is prolonged to make it 6 counts, 7 counts, to 10 counts. The ratio becomes 1:2. It is further increased to 1:3 or 1:4 (five counts inspiration 15 or 20 counts expiration).

### Scientific Basis

Pranayama improves heart rate variability (HRV), cardiorespiratory functions, autonomic functions, metabolic functions, and all visceral functions. We emphasize pranayama or controlled breathing exercises improving heart rate variability. The practice of slow breathing exercise improves vagal tone and reduces sympathetic activity (G.K Pal & S. Velkumary, Ind J Med Res 2004;3:154.160), also we have reported

a decrease in BP & improvement in CV Functions by the practice of slow types of pranayama (G.K Pal et al, Am J Health Prom, 2014;102-109).

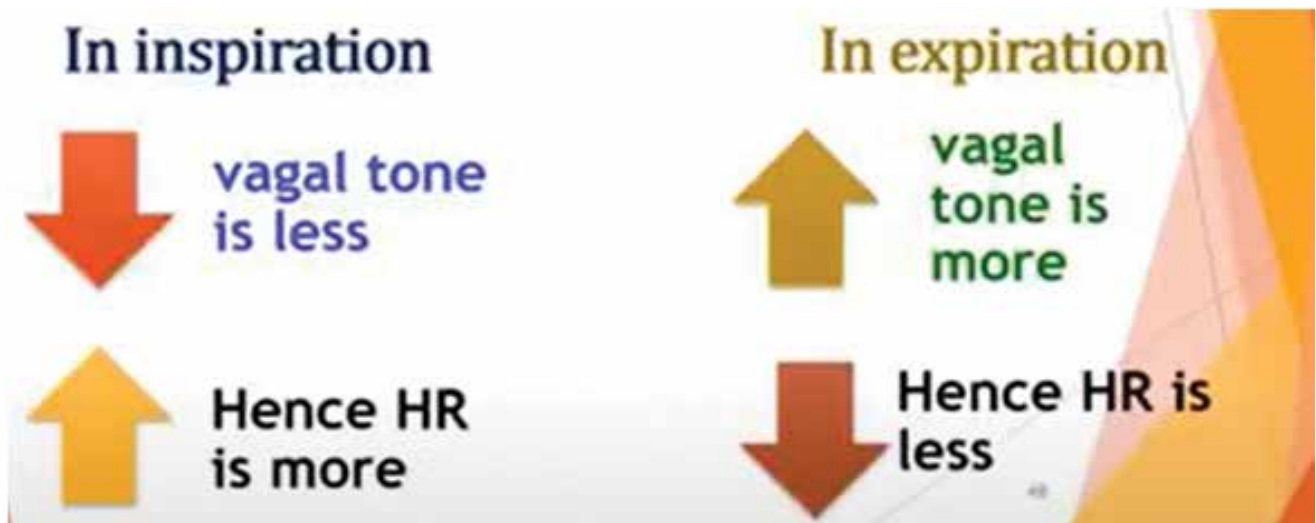
In normal breathing, heart rate is more in inspiration and less in expiration (Sinus arrhythmia), mainly due to alteration in vagal tone in respiratory phases.

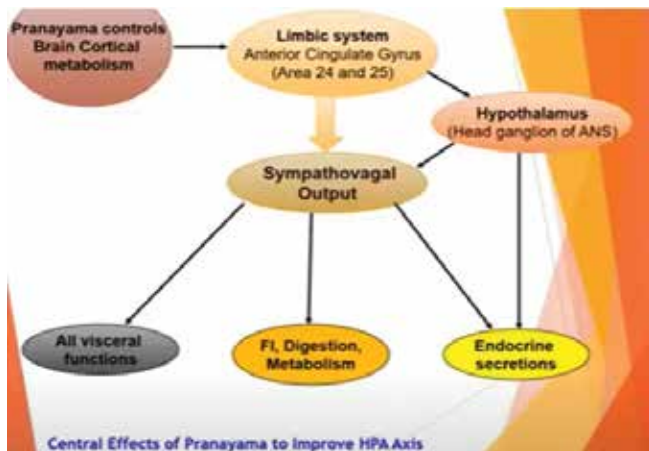
When the Vagal tone to the SA node (natural pacemaker of the heart) is high, the heart rate decreases. In Pranayama breathing (Slow Breathing exercises), the duration of expiration is more which increases the vagal tone which in turn decreases the sympathetic tone and results in Sympatho-vagal balance (SVB).

There are several mechanisms that improve SVB. The first one is as the duration of expiration vagal activity increases. This tunes and strengthens the vagal tone. The second one is as the breathing is deep, Chest and Lung expansions are more, and Proprioceptive stimulation from the chest and lungs Increases vagal tone. Especially Anulom Vilom and left nostril breathing (Chandranadi pranayama) stimulates vagal activity and decreases sympathetic activity. The last one is that slow breathing supplies more oxygen to the brain centers. Therefore, it improves limbic and hypothalamic function.

### Health benefits of Pranayama

Pranayama has enormous benefits on human health, it improves body energy and vitality, brings a balance of the mind and body, and controls emotion. It improves self-confidence, memory intellectual faculty, and the function of neurons and nerves. It also decreases the fear of psychosis and the level of stress in the body and





also improves immunity, cardiovascular functions, and respiratory functions.

As a Therapy Pranayama improves vagal functions, increased the Cholinergic activity of beta cells, and improves Insulin release which helps in Diabetes Management.

Pranayama decreases sympathetic activity and decreases vasoconstriction which leads to a decrease

in BP. Pranayama practice also aids in Hypertension management by improving Sympathovagal balance and also improves cerebral blood flow and respiratory function which helps in the management of lung-related disorders.

### Spiritual Significance

A quote from Hatha Yoga Pradipika “Life is the period between one breath and the next. A person who only half breaths, only half lives”. The practice of Pranayama is for spiritual upliftment and it prolongs our health and longevity. For each person, a fixed number of breaths is allocated to his entire lifetime. If one breathes slowly, he lives longer, as the number of breaths allocated for a single lifetime is fixed. Sahaja Yoga Practice in day-to-day life is more important for this purpose than a fixed schedule of pranayama practice.

### Conclusion

The practice of Pranayama offers many benefits to overall well-being. It is for spiritual upliftment. ■



The image has been taken from “Role of Pranayama in Health and Disease” online webinar series



**Ms. Manjari Chandra**  
Consultant, Functional Nutrition &  
Consultant,  
Nutritional Medicine,  
Max Healthcare

# Integrative Health and Nutritional Intervention

Ms. Manjari Chandra is a Functional Nutritionist and a Wellness Coach, Speaker and Author. She has worked for leading hospitals of India, namely Max Healthcare, Manipal Hospitals, Columbia Asia and many more. She is also the founder of Manjari Wellness. She has been a key note speaker at various public health conferences, scientific discourse and symposiums including events at ASSOCHAM, FICCI, FSSAI and ISMA.

## Abstract

The lecture was a session that tried to connect holistic and integrative health with the important tenets of health. The ten systems are: Gut Micro biome, Hormonal Balance, Inflammation, Immune Balance, Energy, Metabolism & Mitochondria, Detoxification, Structural integrity, Musculoskeletal & Exercise, Psychospiritual, Stress, Personal, Worldly, Mental attitudes, Epigenetics, Nutrition. The Twelve Causes are: Real, fresh whole food., Nutrients (Vitamins, mineral supplements), Light, Air, Water, Sleep, Movement, Rhythm, Love, Connection, Meaning and Purpose. It will explain how nutritional changes can reduce inflammation and modulate epigenetic pathways.

## Introductory Remarks

Director MDNIY highlighted the importance of food we consume. What we eat, that we are; if we eat clean we may preserve 50 percent of our health and other 50 percent can be preserved by exercise, quality sleep and sensory management (Indriya Sukha). Hence in total management of health food plays a crucial role. As we study medicine, we realize it all begins from what went wrong with our basic system: basic system of stress management, of movement Yoga of course is a big contributor. All these things become the major tenets that will change the numerator of health so when we talking to people nowadays we don't limit ourselves to just talking about nutrition but we talk about all the five six basic denominators that are required for the numerator to be healthy one that which sleep cycle, stress management, physical movement, the exposure to toxins and Yoga as the best way to keep our body flexible and exercised.

**A**s a part of the Friday Weekly Webinar, an astounding lecture was delivered by Ms. Manjari Chandra wherein she discussed the basic aspects of Integrative Health and Nutritional Intervention in-depth on 9<sup>th</sup> July 2021.

## Blue Zone

WHO did the study on blue zones in the world. There are 5 identified blue zones in the world where people live up to 100 years and live without any diseases. They don't have cancers or cardio or metabolic disorders and they live a longest span of 100 years. Diseased free Blue Zones are Okinawa, Japan; Sardinia, Italy; Nicoya, Costa Rica; Ikaria, Greece, and Loma Linda, California.. There is an island called "Okinawa in Japan, Loma Linda, a small city in California. When WHO did the study, they were able to identify 10 tenets (things that people do living in the blue zone).

## 9 tenets of Blue Zone

The evidence-based common denominators of all the Blue Zones regions. We call them the Power 9:

**Move Naturally** moving naturally throughout the day walking, gardening, doing housework is a core part of the Blue Zones lifestyle.

**Purpose** The Okinawans call it ikigai and the Nicoyans call it plan de vida. Knowing why you wake up in the morning makes you healthier, happier, and adds up to seven years of extra life expectancy.

**Down Shift** Stress is part of life, but Blue Zones centenarians have stress-relieving rituals built into their daily routines. Adventists pray, Ikarians nap, and Sardinians do happy hour.

**80% Rule** People in Blue Zones areas stop eating when their stomachs are 80% full and eat their smallest meal in the early evening.

**Plant Slant** Beans are the cornerstone of most centenarian diets. Vegetables, fruit, and whole grains round out the rest of the diet and meat is eaten in small amounts.

**Wine @ 5** Moderate but regular consumption of wine (with friends and/or food) is part of the Blue Zones lifestyle.

**Belong Being** part of a faith-based community adds four to 14 years to life expectancy.

**Loved Ones First** having close and strong family connections (with spouses, parents, grandparents, and grandchildren) is common with Blue Zones centenarians. Right TribeThe world's longest-lived people have close friends and strong social networks.

## The 10 Systems

Our Body is basically the set of systems however they are more like functional systems. Gut Microbiome,

Hormonal Balance, Inflammation, Immune Balance, Energy, Metabolism & Mitochondria, Detoxification, Structural integrity, Musculoskeletal are the 10 systems on which body really works. The interaction of hormones, the presence or absence of inflammation or injury in the body, how our immune system is balanced is it underactive or overactive immune system, how is our mitochondria creating energy and then the detoxification of body as we now live in a more populated space so there is a need that our organ should interact in a proper way that it is able to detoxify the body and then is our musco-skeletal system that needs Exercise an important tenet for our health, Psychospiritual health is also an important tenet of a healthy body and then comes the Epigenetics and Nutrition which are the extremely powerful mechanism that can change a lot of things that is going on in our body.

The 12 basic ingredients that nourish the human body, many times we say nutrition is just food however it is not correct nutrition is also what you are thinking, nutrition is also what you are breathing. Real fresh whole food, Nutrients (vitamins,mineral supplement), light,air,wate r,sleep,movement,rhythm, love, connection,meaning, purposeare the 12 things that determine human health.



## Factors That Aid in Reducing Inflammation in The Body

### Intermittent Fasting (IMF)

IMF creates a state of negative energy balance inducing weight loss. It is Easier for the body to burn fat in the fasted state as insulin levels are low. In the fasted state the body can burn fat that has been inaccessible during the fed state.

*Intermittent Fasting Protocol: 16 Hour Fast / 8 Hour Eating Window*

### Benefits of IF

Increases human growth hormone, facilitates visceral weight loss, induces cellular repair (auto phagocytosis), reduces inflammation, improves cognitive health, reduce insulin resistance, lowering your risk of Type 2 Diabetes and also reduces the risk of cancer and cardiovascular disease

### Epigenetics

Genetics is the study of heredity. Countless factors including diet, exercise and environmental exposure play a role in switching genes “on” or “off” via epigenetics. DNA methylation, for instance, is a well-known epigenetic mechanism characterized by the attachment of a methyl group to DNA which stifles gene expression Food items like plant flavones and have been connected to changes in DNA methylation across the whole genome and on particular genes.

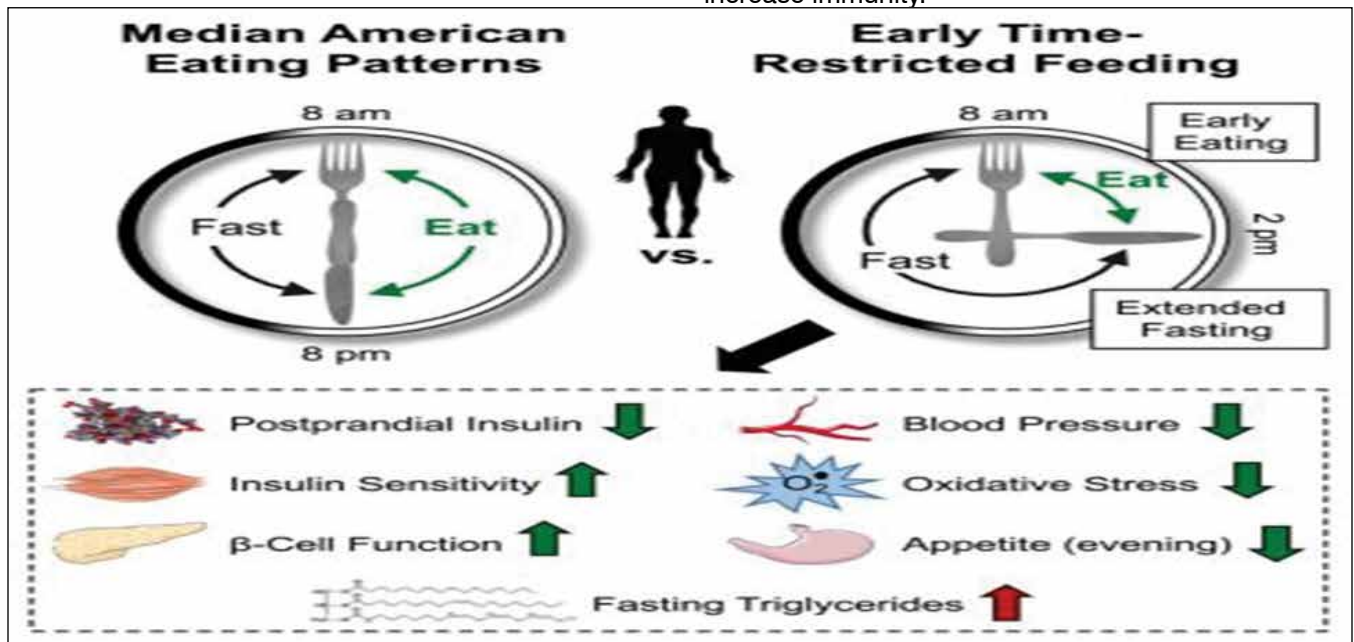
## Foods that Increase and decreases inflammation

Foods that increase inflammation are sugar and high-fructose corn syrup, excessive alcohol, processed meat such as bacon, sausages, Dairy: milk, yellow butter, soft cheese, Sugars, honey, jaggery, Gluten in wheat, rye, oats, Simple carbohydrates such as bread, pasta, rice, Foods that are high in trans fats, Vegetable oils such as sunflower, soyabean, canola, processed snack foods, such as chips and crackers, Desserts, such as cookies, candy and ice cream.

Foods that decrease inflammation are dark leafy greens, including kale, amaranth, leeks and spinach, blueberries, blackberries, jamun, amla and cherries, nutrition-dense vegetables, such as gourds, broccoli, asparagus and cauliflower, beans and lentils, green tea, macha tea, avocado and coconut, extra virgin olive oil, cow ghee, white butter, walnuts, pistachios, pine nuts, and almonds, cold water fish, including salmon and sardines, turmeric, cinnamon, fenugreek, spices and herbs : mint, cilantro and celery.

### Gut Microbiome: 10 times more bacteria than cells

Your gut microbiome is made up of trillions of bacteria and other microorganisms, maintaining the right balance of friendly and unfriendly bacteria in your gut is touted to improve digestion, reduce inflammation, decrease anxiety, improve brain function and mood, increase immunity.





## Sugar: suppresses immunity

Sugar impairs the body's ability of neutrophils to engulf bacteria

The greatest reduction in phagocytosis occurs approximately two hours PP but effects are evident even five hours after ingestion

## 5 ways to balance your hormones naturally

Incorporate healthy fats into your diet: Adding healthy polyunsaturated fats such as omega-3 and omega-6 and try apoptogenic herbs: Adaptogens have been shown to decrease levels of cortisol, a stress hormone secreted from our glands when we experience stress. Take a high-quality probiotic and incorporate fermented foods: Taking a probiotic can balance your gut microbiome and the amount of "good" versus "bad" bacteria that lives in your system, Supplement with Vitamin D and do Bio hack your way to better sleep.

## Gut Brain Axis

The communication system between your gut and brain is called the gut-brain axis. Lot of what we think is how we are, means everything we manifest in the

physiological body has a psychosomatic component to it. Whatever you are experiencing in your head, how you are feeling how your mood is all of it will affect the way the entire physiological system will work.

It will affect the bowel movement, it will affect the gut microbiome, it will affect the nutrient delivery and the nutrient absorption. The Gut health also effect the brain health that's why it is called bi-directional communication between Gut and Brain so people who have poor gut health will feel depressed, low energy and have little bit of cognitive behavioural issues so these are the things that are completely interrelated.

If we are able to keep ourselves positive most of the time and keep our parasympathetic nervous system more active than we are able to improve our physiological metabolic health and vice versa.

## Conclusion

Food has an important role in the management of health. Our gut health and brain health are interrelated hence for the management of intermittent fasting and epigenetics factors that aid in reducing inflammation in the body. ■



The image has been taken from "Integrative Health and Nutritional Intervention" online webinar



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# Prevention of Lifestyle Diseases: Role of Yoga

Dr. Kanika Sharma Sood has received a gold medal for achieving the first position in HP University in MBBS and a Gold medal by Himotkarsh (state association) for achieving first position in HP U in MBBS and various other awards. She has numerous publications to her credit in international peer-reviewed journals. She has also authored many chapters in the Textbook of radiation oncology.

## Abstract

Urbanization and technology have revolutionized lives but they also come at the cost of a rise in lifestyle diseases. A sedentary lifestyle is the most significant risk to health & it is entirely the person's choice to prevent lifestyle diseases. Our lifestyle choices predispose us to many diseases like, diabetes, hypothyroidism, hypertension, and even cancers. Indian Population is particularly at risk of metabolic syndromes related to truncal obesity. The urban lifestyle with the work-life stress also predisposes to psychosomatic disorders which is a neglected area. Particularly in the COVID era, there is a felt need towards improving resilience and maintaining good mental health. Physical activity in form of exercise reduces the risks of a wide range of lifestyle issues. A healthy lifestyle with Yogic practices helps in the restoration of mental as well as physical health.

## Introductory Remarks

Director MDNIY mentioned that some lifestyle-related disease is now being called non-communicable diseases. The environment, adulteration, stress, consumption of alcohol, or smoking is some of the factors that add on to lifestyle-related problems. There is a medical solution that acts as the treatment however lacks when it comes to the prevention of disease. Here, Yoga plays a vital role. Physical posture (Asana), breathing practice (Pranayama), Relaxation practice, and meditation help in bringing mind-body coordination. Practicing Yoga is a wise choice. It has the potential to reduce the risks of many lifestyles diseases and helps in the restoration of mental as well as physical health. Yoga has become a center of attraction for research & therapeutic purpose for modern epidemic diseases as non-pharmaceutical measures. Lifestyle disorders are the prime areas where Yoga nowadays is being indicated as a complement therapy with evidence supporting the beneficial effect of Yoga in these conditions.

An elaborative and informative lecture was delivered by Dr. Kanika Sharma Sood wherein she highlighted and discussed about Prevention of Lifestyle Diseases: Role of Yoga on 16<sup>th</sup> July 2021.

## General Benefits of Yoga

- Yoga helps to attain the steadiness of the body.
- Regularity of the Asanas can help to have a strong body with increased capacity to withstand any sort of illness.
- It helps to improve the inner consciousness.
- It also helps to boost self-confidence, and improves concentration, creativity, and coordination.

## Systemic Benefits of Yoga

### 1. Effect of Yoga on Endocrine System

- Regular practice increases the blood circulation towards the endocrine glands and thereby normalizes their secretions.

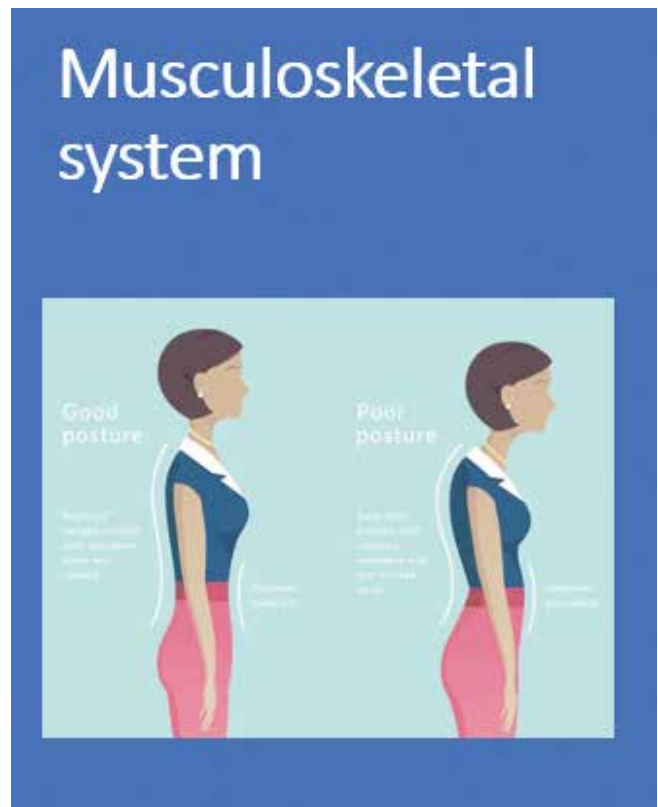


- Some stress-related hormones- do the hyperactivity of the sympathetic nervous system - cause hyperglycemia.
- Asana gives relaxation to the body and mind helping to balance sympathetic and parasympathetic nervous activity- reduce cholesterol, serum LDL, VLDL, and triglycerides levels.
- Yoga helps to lower fasting blood glucose as well as postprandial blood glucose levels and acetylated hemoglobin and also tends to reduce the dose of anti-diabetic drugs.

## 2. Effect of Yoga on Musculoskeletal System

- Asana improves muscular tone which improves the strength of the muscle and gives proper relaxation.
- Improved circulation helps to reduce the amount of fat in the body & removing of metabolic waste products.
- Correction of posture leads to reduction of muscular pains and arthralgias and improves the flexibility

## 3. Effect of Yoga on Respiratory System



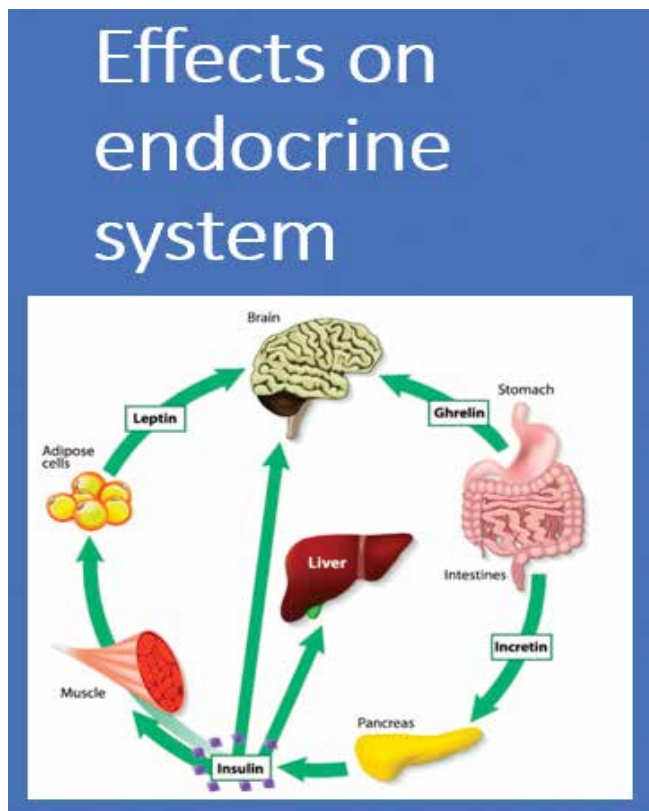
- Yoga significantly improves lung functions and strength of respiratory muscles.
- It helps in reduction in the dose of medicine in patients suffering from COPD and can also be achieved by regular Yoga, and Pranayama practice.
- Lung capacity is improved with practice.

## 4. Effect of Yoga on the Cardiovascular System

- It improves blood circulation to the involved part
- Studies also showed that Yoga slows down the progression of atherosclerosis in subjects with severe coronary artery disease.

## Best Time Period to Start Yoga Practice

Early introduction is the key as the lifestyle and personality develop in childhood. Childhood is considered as the habit-forming years hence Yoga should be brought at this age. As the habits developed during this time are long-lasting. Children should be sensitized which gives the dual benefits. However, it's never too late to start the practice and one can begin at any point of his life.



## Detoxification an Important Aspect to Prevent Lifestyle Disease

Detoxification helps in decreasing the cholesterol level by lowering toxic lipid peroxide levels and the rate of platelet clumping. It also helps in raising the good HDL cholesterol. It helps in lowering the diastolic blood pressure. Detoxification process eliminates toxins in blood. Most environmental toxins are lipophilic that accumulate in fatty tissues of the body. Fat-soluble toxins are associated with a range of diseases such as hormone disruption, immune system suppression,

allergies, diseases of the liver and skin, various types of cancer, neurological illness, reproductive disorders and deformities.

## Conclusion

The lifestyle related diseases act as the slow killer. The best way to overcome them is, to prevent them. Yoga is the most scientifically evolved form of living which is required for the prevention of lifestyle disease. Hence, there is a need to bring the knowledge of the ancient literature to the lifestyle. ■



*The image has been taken from "Prevention of Lifestyle Diseases: Role of Yoga" online webinar Health Care Workers in time of Corona*



**Dr. Sai Krishna Tikka**  
Associate Professor and HOD  
In-charge, Psychiatry at All India  
Institute of Medical Sciences, Bibi  
Nagar, Telangana.

# Exercise and Mental Health

Dr. Sai Krishna Tikka has been associated with research and teaching for the last ten years. His areas of interest are Cognitive Neuroscience, Electrophysiology, and Non-Invasive Brain Stimulation. He is an associate editor of the Indian Journal of Psychological Medicine and a member of the Editorial Board. He is associated with several Extramural and Intramural projects. He has 82 research articles and 21 book chapters to his credit. He has received several awards and recognitions like Young Psychiatrist Award, Bhagwat Award, and Marfatia Award by the Indian Psychiatric Society.

## Abstract

Physical exercise and mental health are intimately linked. Physical exercise has been considered to have a significant impact on global mental health, cognitive functions, well-being, and quality of life. An appraisal of the latest available evidence on the mental health benefits of physical exercise and specific recommendations will also be provided. The challenges, especially those relevant to the Indian context, and methods to enhance the acceptability of physical exercise in our population will be subsequently discussed.

## Introductory Remark

Director MDNIY stated that most of the research papers on Yoga are mainly on stress and mental health. Physical exercise helps in maintaining the health of an individual. It is very important to maintain mental well-being as it contributes to the quality of life. Exercise is a planned, structured, and repetitive bodily movement done to improve or maintain one or more components of physical fitness. Physical activity leads to cellular events resulting in positive mental health effects.

An informative lecture was delivered by Dr. Sai Krishna Tikka wherein he highlighted and discussed about Exercise and Mental Health as part of the Friday Weekly Webinar on 23<sup>rd</sup> July 2021.

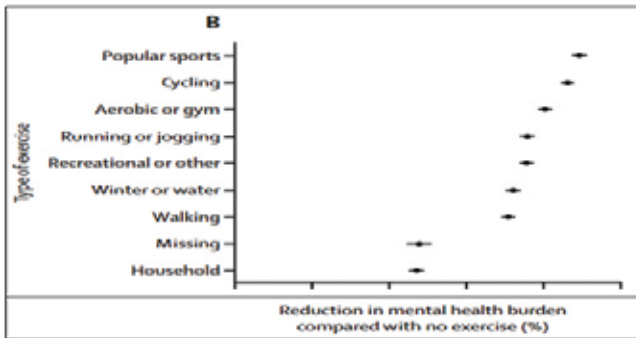
## Benefits of Exercise

- Exercise reduces depression in children, adults, and older adults (8 meta-analyses).

- Exercise reduces stress and anxiety symptoms (3 meta-analyses)
- Exercise is effective as an adjunct in reducing positive/ negative symptoms of schizophrenia (2 meta-analyses)
- Exercise improves global cognitive function in schizophrenia (1 meta-analysis)
- Exercise improves global cognitive function in children with ADHD (1 meta-analysis)
- Physical activity can play an important role in dementia prevention.

Note: Around one-third of dementia cases are attributable to modifiable risk factors.

Exercise Reverses Metabolic Syndrome - Moderate Evidence Regular exercise is important to maintain health, not just for the body but also for the mind as well. Exercise for 45 mins a day, 20 -23 days a month,



or 12 days i.e., 3 per week is sufficient to maintain adequate health.

### Types of Exercise

Different type of exercise includes playing popular sports like cricket, football, etc., cycling, aerobics or gym, running or jogging, recreational activities, walking, and household works helps in keeping the body fit and active. All type of exercise provides benefits and can help in improving mental health. However, the benefits can vary on the basis of the intensity of the workout. Exercise can vary from low, moderate to high-intensity training exercises. E.g.: Low-Intensity Training: walking, household work, etc., Moderate Intensity Training: jogging, running, etc., High Intensity Training: waking, running, biking, etc. Household physical activities are sometimes not enough however, Popular sports can play an important role. They reduced the mental health burden the most. E.g., football, cricket, badminton, etc.

### Precautions

Though exercise provides a variety of benefits but if the precautions are not taken appropriately, then these physical practices can result in disadvantages. A person with a history of CAD or high risk for CAD, orthostatic hypotension, incoordination / imbalance-impaired tandem gait, and existing musculoskeletal disorders or arthritis, should practice accordingly with all precautions checked. Else the practice must be done under the guidance of an expert. If precaution is not followed during the time of exercise, then, it can give side effects such as injury, and exercise dependence.

### Conclusion

Regular exercise is effective in preventing dementia and depression. Any exercise: 30-35 minutes a day, practice such as 3,000 steps is effective, for the general population: sports, 45 mins a day or 3 days per week. As an adjunct is effective in treating depression, substance dependence, schizophrenia, etc. Yoga-graded and guided modules may be more effective. To enhance its acceptability, it may be clubbed along with other activities. However, one of the biggest hurdles is the motivation to start and continue physical practice. Hence, being active, being healthy, and doing any activity at home is better than doing nothing at all. ■



The image has been taken from "Exercise and Mental Health" online webinar series



**Commander Navneet Bali**  
 Director North Region,  
 Narayana Super speciality Hospital  
 & Co-Chair,  
 ASSOCHAM Health Care Council

# Transformation in Health Care Sector in Post Pandemic

Commander Navneet Bali has completed his Masters in Finance from NIFM and B.Sc. from JNU. He has also done his Financial cum Administrative Management course for the Navy and a Special course on Strategic Financial Management, Inventory Control, and Working Capital Management from Edinburgh Business School, Scotland. Prior to joining NH, he was associated with IOSPL as Group COO and Head of Business. He also worked with Rockland Hospitals as Unit Director. Before venturing into the Healthcare Industry, he served the Indian Navy for almost 30 years.

## Abstract

Healthcare means taking care of one's health. Coronavirus affects the respiratory system and damages the lungs, which are very important for survival. Health care development plays an important role in a daunting situation like this.

## Introductory Remark

Director MDNIY emphasised that difficulties are the stepping stones and act as an opportunity. Though the pandemic has affected lives, it also taught that the healthcare sector must transform to meet the challenges. Every challenge is an opportunity. Within this or the next decade, India can be the best healthcare provider for common people as many medicines, medical devices, etc. are now being developed and produced in India. This will not only improve the quality of health but also improve their lives by providing many job opportunities to the people.

**A**s a part of Friday's Weekly Webinar, an elaborative lecture was delivered by Commander Navneet Bali wherein he highlighted and discussed about Transformation in Health Care Sector Post Pandemic on 30<sup>th</sup> July 2021.

## Importance of the Healthcare system

Before March 2020, 70% of Indian healthcare was provided by private and corporate healthcare and 30% by the government. There are primary, secondary, and

tertiary hospitals where people come for the treatment of disease which was the classical allopathic approach of the people of the country. However, after March 2020, it was not expected that a microscopic and even a submicroscopic virus could completely replace a life. In fact, it came as a threat to the very existence of humanity.

Important questions were raised during the pandemic such as what can be the treatment for this infection? What kind of vaccination will help? What kind of medicine will work? What to do according to diet? What to do to increase immunity? What to do to avoid getting infected? Even though a lot of progress has been made, there are many questions that still remain unanswered.

Now people are able to understand the real meaning of health care. Health care does not just mean going to the hospital in case of illness, but actually, it means boosting individual immunity. India has much ancient health-related knowledge which can actually help in boosting immunity so that this virus will not affect and in the worst case if infected, it will help the body to fight the virus. Allopathic doctors have declared that

there is no cure for this virus yet, as it was a completely new virus. Hence, the quest begins to overcome the problem, i.e., alternative ways of increasing immunity which include Ashudhi (medicine), Abhyaas (practices), etc. The main question around the world is how to increase immunity. However, all these questions related to lifestyle modification were already presented in the ancient text.

The second wave has had a more adverse effect than the first. In the second wave, the younger generation was mostly targeted. Elderly people and those with co-morbidities were mostly affected in the first wave, although almost all were affected in the second wave. This leads to a very important step i.e. vaccinating the whole country. Slowly the cases start decreasing which shows that the vaccine is really working.

This pandemic has shown that whether in developed or developing country healthcare infrastructure plays an important role in the security of the nation. Also, the healthcare worker played the role of being aware of the situation and working despite the spread of infection everywhere. The Covid pandemic affected not only physically but also psychologically such as loss of job, inability to earn, etc. Children are stuck at home, and education through online sources has compromised studies somewhere.

In the pandemic, the government, private sector, and society must work together to overcome the situation. Since the government and the private have certain limits, this can be overcome with the cooperation of society. Therefore, there has been a change in the responsibility of the government to the society to fight the virus which includes steps like personal hygiene and keeping the surroundings clean. Various healthcare corporations can play a vital role to overcome the pandemic. It includes health services like Ayurveda, Homeopathy, Yoga, etc. which help in boosting immunity. This brought a change in the mindset of the people and society. As now people are able to think that relying only on allopathy is not an option. There is a need to work on oneself to overcome the problem by exercising, keeping moderation in diet, having a positive mindset, etc.

### Conclusion

Health care plays a major role in fighting the virus in a particular country. However, apart from the conventional treatment against the virus, there is a need to work on increasing immunity by using other alternative treatments and therapies as well. ■



The image has been taken from "Transformation in Health Care Sector in Post Pandemic" online webinar.





**Dr. Sachin Bhargava**  
SrPediatrician and Convenor,  
Sparsh Society NGO

# Children's Immunity and Disease Protection

Dr. Sachin Bhargava has done his post-graduation in Paediatrics from Maulana Azad Medical College Delhi after doing his MBBS. He has been Secretary of the Indian Medical Association and Indian Academy of Paediatrics Ghaziabad and the coordinator for Sparsh Society, a voluntary group of doctors and non-medicos working together for the health and education of underprivileged children. Currently, he is practicing in Vaishali Ghaziabad. He has been very active in public health awareness programs at the community level and has organized many health promotional activities for the general public.

## Abstract

The body's immunity helps fight diseases and maintain health. It can be divided into two parts: the first is natural or innate immunity that every human gets from birth and the second is adaptive or acquired immunity, which is formed in the body after exposure to disease after birth or after vaccination. These two immunities must cooperate together to fight diseases. Diet and daily routine play an important role in immunity. Certain steps should be taken from childhood so that a person can get better immunity throughout life.

## Introductory Remark

Director MDNIY elaborated about the significance of immunity. It is the ability of the body to fight against diseases and maintain health further. It can be divided into two parts:

- Natural/Innate immunity that everybody gets from birth.
- Adaptive/ acquired immunity which is born in the body after coming in contact with the disease, after birth, or after vaccination

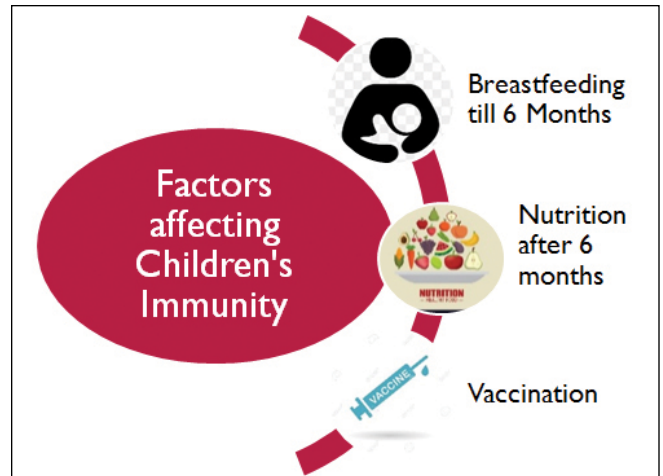
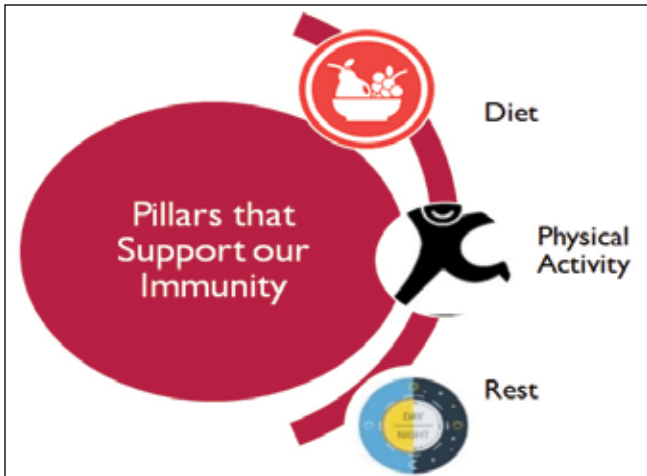
It is important that these two immunities should cooperate together in fighting any diseases, especially in the situations like pandemics. Immunity is not only just taking medicines and vaccination but three important components i.e., Diet, Exercise, and Sleep. In Covid times people can contribute to the nation by keeping themselves healthy and disease free. Yoga offers a complete package. Practices such as Asana, Pranayama, and Meditation work on all the planes of the body and can also help to break the chain of COVID-19.

As a part of the Friday Weekly Webinar dated 6<sup>th</sup> August 2020, an informative lecture was delivered by Dr. Sachin Bhargava, Senior Pediatrician, and Convenor wherein he highlighted and discussed the role of immunity in enhancing children's health.

## Factors that enhance immunity

- Diet: Malnutrition and obesity reduces immunity. Hence it is mandatory to keep checking BMI and maintain an adequate diet.
- Physical Activity: Human body is designed in such a way that it needs physical activity which should increase the heart rate for at least 15-20 minutes in a day to remain healthy.
- Rest: For a healthy life adequate rest and a proper day-night cycle should be maintained.

Daily meditation and an optimistic view help to overcome the diseases seen in many cases during Covid and other pandemics in past. There are certain habits like smoking and drinking alcohol that weaken the Immune system and reduces overall immunity, around 90 % of case of lung cancer is due to Smoking.



**When it comes to Children’s immunity 3 factors should be kept in mind**

Breastmilk is the complete diet for infants, as it contains all the antibodies that are inside the mother’s blood which makes the infant immune to all the diseases that the mother had in her life till then. In their first year, babies gain weight at a faster rate, and to grow that much, they need a lot of nutrients – more than at any other time in their life. Till 6 months breastmilk is enough for the infant however after 6 months child’s body needs more nutrients.

Many vaccines are given in childhood; these vaccines protect the child from serious and sometimes deadly diseases.

**Effect of Obesity and lack of Physical Activity in Children during the lockdown**

Children’s immunity decreased during times of pandemic due to a lack of physical activity. For this, parents should involve children in various activities that involve body movements, can involve them in dance or Yoga classes, or even fix a time in the day for the physical activity.

**Conclusion**

Proper nutrition, physical activity, rest, and meditation together contribute to a healthier life and better immunity among Children. ■



*The image has been taken from "Children’s Immunity and Disease Protection" online webinar*



**Sh Parsa Venkateshwar Rao**  
Jr Senior Journalist and Political  
commentator

# Amrit Mohotsav India@75

Sh Parsa Venkateshwar Rao is a senior journalist and political commentator. He is the author of several books on Indian politics. Parsa Venkateshwar Rao has worked with the Indian Express, India Today, DNA newspaper, and as a freelance journalist, he has written for the Times of India, Deccan Herald, Asian Age/- Deccan Chronicle, and the Tribune, etc. He has also written several books.

## Abstract

“Azadi Ka Amrit Mahotsav” is an initiative of the Government of India to celebrate and commemorate 75 years of independence of progressive India and the glorious history of its people, culture, and achievements. Hon'ble Prime Minister, Shri Narendra Modi inaugurated the 'Azadi Ka Amrit Mahotsav' by flagging off 'Dandi March' from Sabarmati Ashram, Ahmedabad on 12th March 2021.

## Introductory Remark

Director MDNIY contemplates that the country is made up of its people. In this struggle, the common people of the country demonstrated unparalleled heroism to achieve independence for the country. The Government of India has decided to celebrate Azadi Ka Amrit Mahotsav, the 75 years of independence to bring the realization of the effort made for independence in people's minds.

**S**h. Parsa Venkateshwar Rao Jr gave a brief overview of Amrit Mohotsav: India@75 as part of the Friday Weekly Webinar on 13<sup>th</sup> August 2021.

In 2014 Prime Minister, Shri Narendra Modi Ji identified two goals one was that by the 150th Birth Anniversary of Mahatma Gandhi that there should be a clean, sanitized Country with toilets for everybody, and second that there must be a celebration of the 75th Independence with strong polity and a strong economy. Now India is emerging as the leader in world politics. All the big powers and the regional powers have to reckon with the position of India as the key player in global politics. Still, it is always useful to go back and look

at how we started 75 years ago and now what is the current scenario. There are lessons to be learnt, there are things to be proud of, so both achievements and failures are an important part of lessons that will help in going forward into a bright future.

## Independent India

India's independence in 1947 was a very paradoxical situation. It was a moment of tremendous happiness as the country became independent after the long colonial rule and at the same time, it was a traumatic situation because of the partition. When India broke up into two countries India and Pakistan, there was a lot of violence, a lot of killing, and separation of people; people were forced to migrate from their home places.

Looking back, despite challenges, difficulties, and sorrows at the moment of birth of Indian Independence also lead to the development of “Democratic polity”. The major thing the Indian leader did at that time was to get ready to write the “Constitution of India”. Independent India chose the democratic path, secondly, there was a creation of constitutional democracy, a book that guides in politics, a book that helps in framing Democratic Institutions.

Writing the Constitution was a very important task and it was not done by a single person or a single party, it was done by all the leaders of many parties of many different views. Even today looking at the debates of the Constitutional Assembly makes us sit up.

India became Independent and was not able to become a uniform Country. The country did not share just one thought and one ideology, everybody was able to speak up and there was a clash of ideas. One of the best things about democracy is the clash of ideas, ideologies, and even personalities. Even when the leaders differed from each other they respect each other. The Constitution of India became strong because it was written by different people of different views.

The making of the Constitution was the biggest achievement of Independent India as, after 127 amendments, the constitution was still the strongest constitution. Without Constitution, Indian Democracy might have survived but it would not be as stable as it has been for 75 years. When looking around the neighboring countries that got Independence, those countries were not as fortunate as India. Pakistan set out to write Constitution but could write as “Marshall law” was imposed but, India not only completed the Constitution but also implemented and adopted the constitution in 1950, January 26. In 1952 the first General Election was held and Congress won the Election as it has a major role in the Indian Freedom Movement. Congress won the elections of 1957, 1962, 1967 and 1971 also but each time it was not a one-party rule as it might appear.

In 1967 many of the states went out of the hands of congress. The Dravida Munnetra Kazhagam (DMK) formed the first non-congress government in Madras which was later called Tamil Nadu, and then in 1957 the first communist government in Kerala. This is the political Diversity that is the sign of a vibrant democracy.

In 1967 Uttar Pradesh, a coalition Government led by the late Charan Singh was the coalition of many parties which has now become split but it was an assertion that in India no one party can hold the power for too long then there was another party which really asserted

itself called “Swatantra party” which was formed by late Rajagopalachari who fell out with Jawaharlal Nehru for political ideas and systems. Rajagopalachari was one of the early people who favored the market economy and did not approve of Nehru’s socialism and the public sector. Rajagopalachari and Nehru were great colleagues and friends but when it came to the expression of opinion they took their stand and they clashed.

The Swatantra party came to power in many states like Rajasthan, Madhya Pradesh, and Orissa. Later on, in 1971 Congress again came into power because of the Slogan given by Indira Gandhi of “Garibi Hatao”.

When India became democratic many western experts believed that India cannot remain democratic for too long, it will split, it will become a dictator but the democracy reasserted itself again and again and though there were popular charismatic leaders like Nehru, the people knew whom to vote and how Congress majority got reduced after each election and then in 1977, the first non-congress government at the center, 10 years after the event has taken place in the states. 1967 many states had formed the non-Congress government. Forming the non-Congress government was important to show that we are not a one-party state. A party might be dominant, a party might be very popular but the other political alternatives came and they emerged, this is the miracle of democracy. In 1977 Janta party was formed after the emergency which was in 1975 to 1977.

In 1989 again coalition opposition government was formed by V.P Singh, then again it showed that every other party has been wiped out only a single party is nominating, the people of India through up an opportunity for other parties to emerge and other things to form. Although the VP Singh party may be weak again the same contradiction as Janta Party which lasts for 11 months only showed that Indian Democracy is too alive and too vibrant to push under the carpet. The whole of the 1990s has seen a coalition Government with a lot of political turmoil.

The Government of P.V. Narsimha Rao which was formed in 1991 after the assassination of Rajiv Gandhi

did not have a majority but it had to carry out a very important turn in Indian economic history by adopting the economic reforms, it could not be avoided. In parliament, congress did not have the majority but many of the parties, and one of the major parties at that time was the “Bhartiya Janta Party” the Government was supported by everyone and said that the reforms are necessary though it was not approved however everyone knows that this is the need of the country. Hence, there was support for the Government for the economic reforms.

Many things went right and went wrong but India took a very definite turn away from the previous Government’s socialist reform. After the second world war, the World was divided majorly into two blocks one was that of the democratic Countries of Western Europe and of North America and then that of the communists in the Soviet Union that is today’s Russia and many of the East European Countries and it looked as though there is no other alternative. Nehru tried to walk the middle line and took the socialist pattern of society with democracy where ever socialism was adopted; democracy went out of the window. Fortunately for India, democracy stayed, and, socialism failed”. So, it was a good bonus for India that it remained democratic.

Economic development took place, the public sector was formed everybody now recognizes, those who don’t agree with socialism, those who don’t agree with the philosophy of the public sector but perhaps that was inevitable and there was a need for a certain extent the public sector formed the basis.

For Instance, the Indian Space Research Organization is a wonderful example of what an organization under the government but given the freedom can do miracles. Similarly, at the Bhaba Atomic Research Institute where nuclear research was going on and there was a development of some but not entirely nuclear reactors to generate electricity. India was really reaching out to all the scientific possible solutions to get into the modern world. Industrialization was very slow, and in the public sector, few of them did very well. So, there was a need to look back and see what could be done differently and it may raise the question of why not adopt the free marketing system early on like Japan did, like Europe

did but the means were not there because after the Independence the Indian Private Sector also looked to the Government for protection, for help because it did not have sufficient capital to build the things.

What is really miraculous about India is that in spite of trial and error, in spite of many failures, in spite of small successes India survived as a single and democratic country. Different parties emerged and political diversity remains as vital as ever. After 50 years in 1998 “Bhartiye Janta Party” comes to power and Atal Bihari Vajpayee becomes the Prime Minister, this is another beautiful term because the ideology of the BJP is very different from that of the Congress. Now, in a democracy there is no expectation of only one party and one ideology to survive, people have to make a choice to choose one party and one ideology at one point in time and choose another party and their ideology at the other point of time depending on the situation in the country and it looks like that many other Countries, India also turned rightward because the BJP’s Ideology of Nationalism is on the right end of the spectrum and quite opposite the socialism and communism the left end of the spectrum and it was natural because Communalism and Socialism sought of collapsed in eastern Europe and Soviet Russia, the Soviet Union just vanished and it looked like that socialism did not succeed. Of course, Socialism in Western Europe in another form succeeded in Britain, and the USA. Britain and the United States are considered premarket economies, which went through a time when felt by the political leaders over there. The Government intervened and did a lot of things in terms of education in terms of road infrastructure, health care, and agriculture as well. In England, after the second world war, the Labor Party came to power and it was the labor party agreed to the Independence of India as well.

It is always better to be a democracy, an example of China is a country that imposes a Communist dictatorship. It is a happy thing that in India the Debates are still alive. People believe in a free market economy but every government seen cannot follow only one path and one of the things could be seen in the government that came into power, Prime Minister Modi found tune balance between the market economy and the socialist imperatives of governing.

People still need the help of the government in many areas, especially in rural India and it can be seen happening in the toilet movement, creating toilets all over the Country which is a basic necessity, building roads, and helping rural women with the “Ujjwala Scheme” so that they get the gas cylinder.

India is trying to create its own Model, its own balance of forces, and try to maintain a balance between the diversity in India. Diversity is the strength. Every Country –looks toward India as a successful Democracy, as a successful Market Economy.

## Conclusion

India is the largest democracy in the world. In the 75 years, the country has emerged with democracy intact with the territory and diversity. India will become a very strong power in the future, providing hope for the smaller countries to be a democracy, and having very coordinated and civilized politics. ■



*The image has been taken from “Amrit Mohotsav: India@75” online webinar*



**Dr. Suneela Garg**

Dir. Professor and  
Head Community Medicine,  
Maulana Azad Medical College &  
Associated Hospitals,  
New Delhi-2

# COVID-19 Mental Health and Role of Yoga

Dr. Suneela Garg has done her M.D in 1982 from MGIMS Sevagram. She has professional research experience of about 40 years, She is Head, of the Faculty of Medical Sciences (Delhi University). She is an Advisor, to the Indian Council of Medical Research (ICMR) and a Member of, the Task Force Department of Biotechnology (GOI). She is the Director, of the Society for Sound Hearing International and also a coordinator for action documents on school openings. She has been awarded various prestigious awards like KN RAO Memorial Oration of Indian Public Health Association 2018, Harcharan Oration of IAPSM for the year 2019, State award for meritorious services, etc. She has published around 200 papers and manuals for WHO and the Ministry of Health and Family Welfare.

## Abstract

Novel coronavirus infection has become a major public health problem and is the first pandemic of the 21st century. Yoga is the best thing to adopt as a lifestyle habit. It plays an important role in overcoming mental stress.

## Introductory Remarks

Director MDNIY describes that COVID-19 has created havoc in everyone's life; creating a situation of stress in society. Practicing Yoga is the best way to overcome the stress in this pandemic as it works not only on physical health but also on mental health. The pandemic is not just a medical phenomenon; it affects individuals, and society and causes disruption, anxiety, stress, stigma, and xenophobia. Covid-19 has affected different sectors of life. Such sectors include health care delivery, mental health services, etc.

**A**s a part of Friday's Weekly Webinar, an elaborated session was delivered by Dr. Suneela Garg wherein the expert discussed about "COVID-19: Mental Health and Role of Yoga" in detail on 20<sup>th</sup> August 2021.

## Effects of Covid-19 on Healthcare Delivery

- Difficulty in seeking essential medical care.
- Difficulty in getting routine medical care.
- Laboratories have not diagnosed other diseases.

- Health division was overburdened with Covid- 19 cases.
- Risk for more infections
- Delayed treatment for other infections.

Mental health services are also equally affected. According to a new WHO survey, the pandemic has disrupted or halted critical mental health services in 93% of countries worldwide. Bereavement, isolation, loss of income, and fear trigger mental health conditions. Increased levels of alcohol & drug use, insomnia, anxiety, continuous flow of negativity, the inadequacy of daily resources, everything is adding to daily depression in the lives of people.

WHO survey finding shows over 60% reported disruption to mental health services for vulnerable people, including 72% of children and adolescent, 70% of older adults, and 61% of women requiring antenatal or postnatal services. More than 35% reported disruptions to emergency interventions, including those for people experiencing prolonged seizures; 30% reported disruptions to access to medications for mental, neurological, and substance use disorders.

Around three quarters reported at least partial trouble with school and workplace mental health services (78% and 75% respectively).

### Healthy ways to cope with stress

- Take breaks from watching, reading, or listening to news stories, including those on social media.
- Make time to unwind.
- Connect with relatives, friends, and others.
- While social distancing measures are in place then, try connecting online through social media or by phone or mail.
- Taking care of the body, taking deep breaths, doing stretching workouts, meditating, etc.
- Try to eat a balanced and healthy diet.
- Exercise regularly
- Get plenty of sleep.
- Avoid consumption of alcohol and tobacco.

### Helping Others

- Taking care of oneself can better equip you to take care of others.
- During times of social distancing, it is especially important to stay connected with friends and family.
- Helping another cope with stress through phone calls or video chats will not only help oneself but also helps loved ones feel less lonely or isolated.

### Measures were taken during the pandemic

Governments of the World have implemented five strategies for the prevention and control of covid -19 pandemic.

- Staying at home which includes complete lockdown or work from home and schools shut down.
- Social or physical distancing
- Quarantine
- Testing of suspected patients
- Isolation of confirmed cases

Covid-19 has created a situation of stress in society. Its effect includes feelings of fear, anger, sadness, worry, numbness, or frustration in society. There is a change in appetite, energy desires, and interests among the

people. People find it difficult to concentrate and make proper decisions. Difficulty in sleeping and nightmare became part of the daily routine during the time of the pandemic.

### Yoga: As the best means to overcome stress

By practicing Yoga, people can promote values that inspire peaceful, environmental stewardship for the betterment of the society and earth. WHO urges their member states to their citizens to reduce physical inactivity which is among the top ten leading causes of death worldwide.

### Children and Yoga

Children can experience anxiety, social isolation, and an abusive environment that can have short- or long-term effects on their mental health. Some common changes which can be seen in children include excessive crying in children's behavior, increase sadness, depression, or worry, difficulties with concentration and attention, changes in or avoiding activities that they enjoyed in the past, unexpected headaches, and pain throughout their bodies and change in eating habits, etc.

Yoga plays an important role in overcoming mental stress. Children can also benefit from Yoga. As many are facing mental stress due to isolation. Yoga can be useful as a coping method. Parents and teachers should encourage and motivate children to practice Yoga.

### Benefits of Yoga in Pandemic

Practicing Yoga is the best way to overcome stress during this pandemic.

- Yoga helps to build strong mental health and well-being.
- There are different forms of Yoga that can help to stay people fit and healthy.
- Stress is the element that triggers our sympathetic issues and, in such situations, Yoga can help people to stay calm.
- The postures and asanas of Yoga help reduce muscle tension, and joint issues and relaxes the



sympathetic system which results in a relaxed state of mind.

- There are a lot of Yoga poses that helps in managing blood pressure level and anxiety.
- Yoga also teaches how to regulate breath which can make a person feel relaxed and at peace.

## Conclusion

Yoga brings peace and calmness into an individual's life. Though this pandemic has adversely affected lives, however, it has also opened the gate to thinking over our own mistakes and prioritizing health first. Hence, Yoga plays an important role in overcoming mental stress and for a healthy life ahead. ■



*The image has been taken from "COVID-19: Mental Health and Role of Yoga" online webinar*



**Ms. Upasana Arora**  
Director,  
Yashoda Super Speciality  
Hospitals, Ghaziabad

# Health Care Workers in the time of Corona

Ms. Upasana Arora is a dynamic leader in the Indian healthcare industry. She is the First Indian working in India to be awarded the prestigious Fellowship of ISQua (International Society for Quality and accreditation). She also holds an International Fellowship on Health Technology Assessment (HTA), Anglia Ruskin University, the U.K. She has been conferred with numerous awards: Uttar Pradesh Innovation Leadership Awards –2021, Lifetime Achievement in Healthcare Award presented by “World Leadership Awards” 2021, Double Helical National Health Awards 2019, Business Women of the Year 2018, Women Achievers Award 2019 by ASSOCHAM.

## Abstract

Covid 19 has affected public life very adversely. In these tough times, healthcare workers have played a very important role in serving the masses. In this lecture, the speaker will elaborate on and discuss the role played by healthcare workers on a larger scale.

## Introductory Remarks

Director MDNIY explained how the COVID-19 pandemic has disturbed the mental health of not only the general public but also the “Health care workers”. They were the front-line warriors in this pandemic. Hence, maintaining mental health became a challenge for society and in this challenging situation, Yoga has come as a ray of hope for everyone.

An informative lecture was delivered by Ms Upasana Arora who deliberated upon how Health care workers supported society during the pandemic and also the factors that are raising stress among them on 27<sup>th</sup> August 2021.

## Factors Affecting Mental Health of Health Care Workers in Covid Times

The COVID-19 pandemic represents one of the most stressful events of recent times. Among the population, healthcare professionals who treat COVID-19 patients are most likely to develop psychological distress and posttraumatic stress symptoms. Health care workers

have carried a heavy burden during the COVID-19 crisis and, in the challenge to control the virus, have directly faced its consequences.

## Factors affecting the Mental Health of Health Care workers

Physicians and other frontline health care professionals are particularly vulnerable to negative mental health effects as they strive to balance the duty of caring for patients with concerns about their own well-being and that of their family and friends. the four main factors that affected the Mental Health of Health care workers are:

- **Society:** As the health care workers were treating the Covid patient many people thought that they might spread the virus to them and didn't treat them well.
- **Wearing PPE Kits:** We can't wear masks even for one hour continuously, by this we can think how suffocating it was for the health care workers.
- **Work Pressure:** During the 2nd wave there was tremendous pressure of work on the workers

they were working day and night, and most of them didn't even go to their homes for months.

- **Feeling of Helplessness:** Thousands of people were dying daily in the 2nd wave, health care workers saw people dying in front of themselves, they were the only ones who were handling the dead bodies of patients, as attendants were not allowed to touch the Covid infected dead bodies.

### Role of Yoga and positive thoughts in Pandemic

Indeed, some studies show that personality traits such as optimism and pessimism can affect many areas of your health and well-being. The positive thinking that usually comes with optimism is a key part of effective stress management. Many of us also saw these during the 2nd wave of COVID-19 and emphasized the "Placebo effect". The placebo effect is more than just positive.

### Placebo Effect

A placebo is anything that seems to be a "real" medical treatment -- but isn't. It could be a pill, a shot, or some other type of "fake" treatment. What all placebos have in common is that they do not contain an active substance meant to affect health, it's about believing a treatment or procedure will work. It's about creating a stronger connection between the brain and body and how they work together, "said Almost we all have heard of Placebo Effect:

Just one positive word and our thoughts can make a massive difference in creating a happy and healthy society.

### Yoga: A ray of hope in the COVID-19 Pandemic

In India almost everyone did Yoga during the pandemic, even health care workers when they got some free time, did Pranayama and even shared that they feel better after doing Yoga, few hospitals have also started Yoga classes.

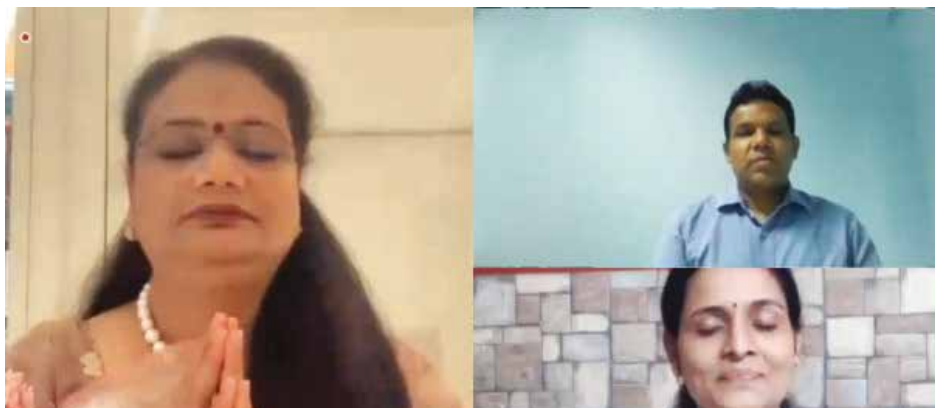
It is scientifically proven that Yoga increases immunity. Hence it is the need of the hour that each and every individual should do Yoga in their daily routine.

### Role of MDNIY during Pandemic

Morarji Desai National Institute of Yoga has also sent its Yoga Instructors and therapists to around 20 Hospitals, Therapy Centers, and CGHS Dispensaries during the pandemic, more than 5 lakh people got benefited through online classes and more than 14,673 Covid patients in CGHS hospitals experienced immense benefits through Yoga classes organized by MDNIY.

### Conclusion

Health care workers are the backbone of our society and it is everyone's duty to at least "Appreciate them" as they are the one who is working as Armies in this pandemic, they have risked their lives in order to save our lives. Also, it is scientifically proven that Yoga increases immunity. Hence it is the need of the hour that each and every individual should do Yoga in their daily routine. ■



The image has been taken from "Health Care Workers in time of Corona" online webinar

**Dr. Mahak Sharma**

Associate Professor  
Dept of Nutrition and Dietetics  
Manav Rachna International  
Institute of Research and Studies,  
Faridabad, Haryana.

# Nutrition and Work Place

Dr. Mahak Sharma is an Associate Professor in the Department of Nutrition and Dietetics at Manav Rachna International Institute of Research and Studies, Faridabad, Haryana. She has completed her Ph.D. in clinical Nutrition as a scholarship holder from Delhi University. She has expertise in metabolic syndrome (Diabetes, hypertension, heart disease, and obesity) and physical activity. She is a certified diabetes educator affiliated with the International Diabetes Federation. She has 40 original papers in international journals and national Journals. She has attended numerous conferences, and workshops and presented papers at national and international conferences. She has received 2 research paper awards for her Ph.D. work. She has received Vishwakarma Award 2019, the 2nd runner-up award for her start-up “Nature’s Drop” funded by DST.

## Abstract

Due to the current pandemic situation, many working professionals are forced to live a sedentary life. People are now bound to sit behind their laptops and work online for an extended period of time in a day. This is affecting the mental and physical health adversely. In this situation, it is important to know about the right kind of nutrition, and what nutrients are important to stay healthy.

## Introductory Remark

Director MDNIY laid emphasis upon diet, sleep, and Yoga practice as these three are the most important aspects to maintain immunity. Yoga and a proper diet play an important role. The guidelines for proper nutrition are provided in ancient Yoga texts and Granthas. Yoga tells about the Sattvik Ahara. Food that is seasonal, regional, and required for the body. Yoga also takes the aspect of taste into consideration i.e. the Madhura Ahara as the food is not just for sustainability but also for enjoyment. Yoga gives a simple way to increase immunity and maintain healthy well-being by the means of modification in the diet.

**D**r. Mahak Sharma discussed the role of Nutrition and Work Place on 3rd September 2021, as a part of Friday Weekly Webinar.

In the Asian population, the majority is of the working-age group. This age group spends most of their waking hours at the workplace. The working population is increasingly adopting sedentary lifestyles, working behind computer screens, sitting at desks, and staying in sitting positions most of the time standing in the same position for a long duration.

The working conditions vary among the various sectors such as sedentary lifestyles, stress at the workplace, also unhealthy behavior that persists in all sectors. On the other hand, Workers are unaware of a healthy diet, lack physical activities for physical and mental well-being, have no time or means to deal with stress, maintain mental health, eat healthy food and follow a proper healthy lifestyle. Maintaining a healthy eating pattern, regular physical activity, and maintaining healthy body weight, are key parts of ensuring a healthy and sustainable workforce.

## Promoting Healthy Diets at the Workplace

It is essential to promote the consumption of a variety of foods and awareness regarding serving sizes. For a healthy diet one should have small and frequent meals, should not skip meals, including cereals, pulses, vegetables, and fruits in liberal amounts, include sugars and fat in moderate, consume at least 8-10 glasses of water, should keep in mind the timings of meals that are very important to follow, encourage conscious calorie reduction and should count calories intake. Availability of fresh vegetables and fruits in the cafeteria, seasonal fruit and vegetables should be in the cafeteria, no fancy fruits required and at least 3-4 fruits should be consumed but not at one time. Clean water should be the default drink in the workplace and at meetings, and discourage sugar-sweetened beverages, green tea (2-3 times/day), green coffee (2-3 times/day), black tea (1-2 times/day), detox water (any time except morning), discourage consumption of foods high in salt, sugar and saturated and trans fats, avoiding processed foods, avoid pickles, sauces, papad, chutney, avoid high sugar foods like pastries, cakes, cookies.

## An important aspect of weight loss

Obesity is always associated with all elements of the non – communicable diseases. Obesity is associated with insulin resistance. It also contributes to hypertension, high cholesterol, low HDL Cholesterol, hyperglycemia, and type 2 diabetes. Obesity is associated with a high CVD risk. According to WHO (2008), physical inactivity is an independent risk factor for chronic diseases and overall is estimated to cause 1.9 million deaths globally. Adults aged 18–64 should do at least 150 minutes of moderate-intensive aerobic physical activity throughout the week. At least 75 minutes of vigorous-intensity aerobic physical activity throughout the week.

## Need of physical activity at the workplaces

Physical activity can benefit an organization because active workforces tend to report less illness and recover more quickly from illnesses, experience fewer

work absences, experience lower staff turnover, and productivity is more, and will have fewer industrial injuries. The active workforce reports higher levels of satisfaction with their work and all these positive changes to create a positive corporate image.

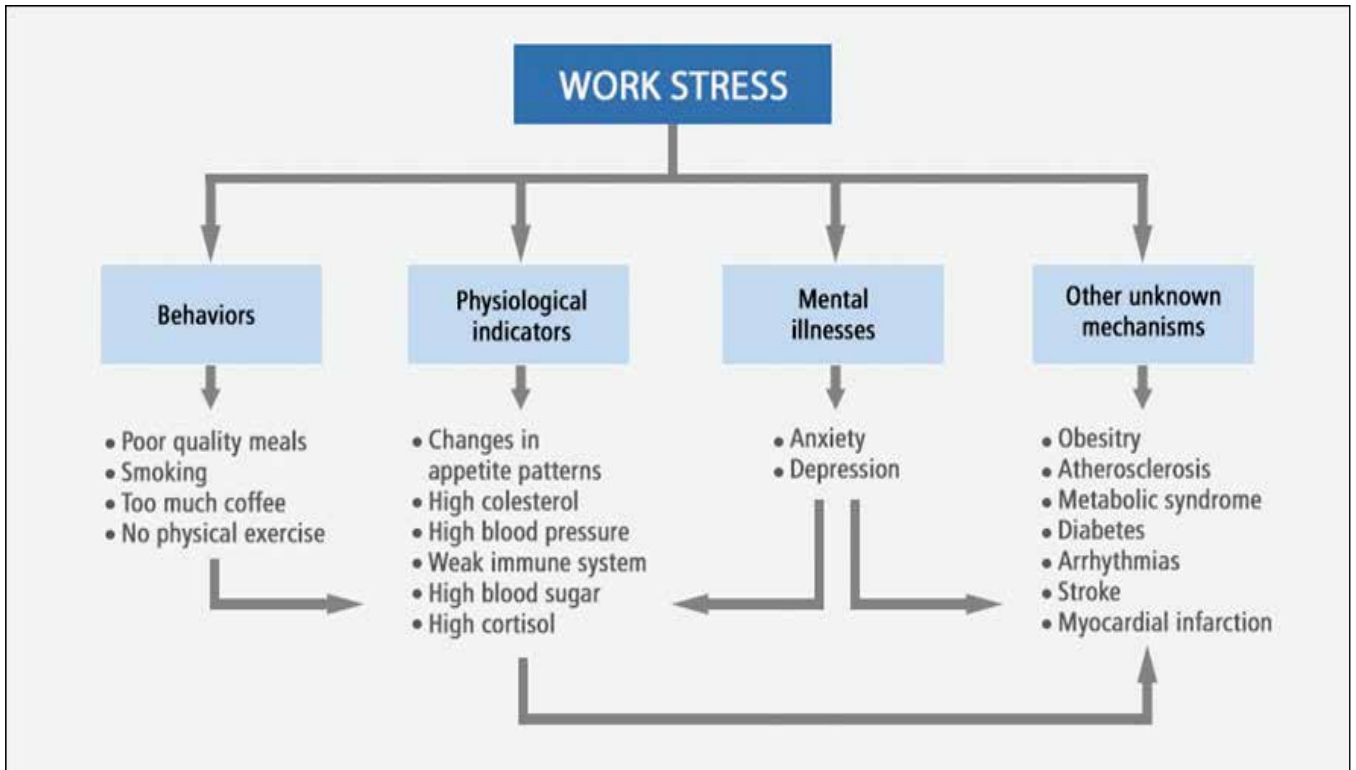
## Increase access to physical activity in workplaces

Provide on-site fitness facilities for physical activity, Create a culture of physical activity by encouraging brief exercise breaks throughout the working day, Integrate physical activities in meetings as part of routine healthy and active breaks , Provide incentives for active commuting to work, and Arrange corporate challenge with prizes or incentives that involves physical activities, encourage participation in local and national events such as sponsored walks and fun runs, Join a corporate membership scheme with local leisure services and promote this with staff. Arrange a team gathering or corporate retreat that involves some form of physical activities, Provide staff with information on the benefits of physical activity and healthy balance.

## Stress-free Environment

If employees are put in a high-stress situation whether from unclear expectations, unreasonable deadlines, or a hectic workspace then there is a risk of moving into fight-or-flight mode. This is something that happens to our bodies when we feel threatened. The primal, more emotional, parts of our brains take over, and the ability to think long-term strategize, and innovate decreases. If the mode stays too long, eventually, we get burned out. To counter this effect, you need to build a secure work environment and incorporate stress reduction habits into your team's daily workflows possible solutions: At the level of the employee learn time management skills and simple de-stressing (relaxation) exercises e.g., deep breathing. Develop channels for venting emotions and sharing feelings at home/ with friends.

The level of the employer/supervisor should create an environment where employees feel free to share what they feel, provide communication skills training



for all employees across the ranks, create a system with a balance of positive reinforcement and healthy and constructive criticism, and create space and time for recreational activities at work, make provisions for crèche for employees with young children.

### Conclusion

Productivity can be increased by changing the overall lifestyle of the person which includes healthy nutrition along with a healthy workplace and if the workplace is safe it ensures a healthy and sustainable well-being. ■



The image has been taken from "Nutrition and Work Place" online webinar



**Dr. Swapna Chaturvedi**  
Dietician,  
Department of Dietetics,  
All India Institute of Medical  
Sciences (AIIMS), New Delhi

# Healthy Eating and Lifestyle for Good Health

Dr. Swapna Chaturvedi is a Clinical Dietitian at All India Institute of Medical Sciences, New Delhi. She focuses on women's health and how various foods have different effects on the human body.

## Abstract

Healthy eating is a way of life. A balanced diet provides nutrients in the required amounts and the right proportions for various age groups. A good lifestyle includes healthy eating and physical activity, remaining stress-free, and avoiding smoking and alcohol. It is every person responsibility to take good care of one's health for well-being.

## Introductory Remarks

Director MDNIY talked about the initiatives taken during the pandemic by the Ministry of Ayush. He emphasized on the three important points for good health i.e. Poshak Ahara, quality of sleep, and Yoga practices, this helps in developing immunity, increasing resistance power, and overcoming the complications of the pandemic situations. We can correct the ailments by just controlling our diet. Hence, Yoga emphasized on Yuktahara and Mitahara. The preferred food for maintaining good health should be a balanced diet, food should be seasonal, reasonable, locally available, tasty, and nutritious.

**A**s a part of Friday Weekly Webinar an informative session was delivered by Ms. Swapna Chaturvedi wherein she discussed about Healthy Eating Habits and Lifestyle for Good Health on 11<sup>th</sup> September 2021.

## Balanced Diet

A diet that provides all nutrients in the required amount in proper proportion is called a balanced diet. 50 to 60% of the total calorie comes from carbohydrates,

10 to 15% from protein which includes both veg and nonveg intake, and 20 to 30 % from fats both visible and non-visible fats, it may also include dietary fibers and antioxidants for additional health benefits.

## Factors affecting the daily dietary requirement

There are several factors like age, gender, physiological status whether pregnant or lactating, and physical activity of the person whether sedentary worker, heavy worker, or laborious worker which affect the daily dietary requirement of a person.

Types of Nutrition Nutrition can be divided into 2 categories on the basis of intake amount:

**Macro Nutrients:** These are needed to be taken in large amounts. It includes carbohydrates, protein, and fats.

**Micro Nutrients:** These are needed to be taken in small amounts. It includes vitamins and minerals.

## Food Groups According to ICMR (Indian Council of Medical Research)

ICMR categories the food into the following categories

**Go Foods:** These are energy-rich food that includes carbohydrates and fats.

**Grow Foods:** These are body-building foods that include proteins. Non vegetarian food is called Class-A protein as they contain all the amino acids whereas vegetarian food is called Class -B which is found in cereals and pulses.

**Glow Foods:** These are protective food that includes vitamins and minerals. These are found in fruits and vegetables.

### Growth and milestones at different stages of life

The different stages include infants where breast milk and energy-giving food are provided, next is childhood in which energy-rich food, body-building food, and protective food are provided, adolescence is provided with food for bone development and growth, as the person moves toward the stage of adult, the food provided will take care of the bearing and rearing.

### Dietary Guideline for Indians

For Indians, the dietary guidelines have been set up to meet their nutritional requirement and health for Indians.

These include-

- Include a variety of food
- Provision of extra food & health care to pregnant & lactating women.
- Exclusive breastfeeding for 6 months and encourage breastfeeding till 2 years.
- Feeding home-based semi-solid foods to the infant after 6 months
- Plenty of fruits and vegetable intake.
- Moderate use of edible oils & animal food & less use of ghee/butter/vanaspati.
- Avoid overeating
- Exercise daily
- Restrict salt
- Adopting the right precooking method
- Drink plenty of water and minimize the use of beverages.

- Increase the micro-nutrients in the diets of elderly people

### HFSS Foods (High Fat Salt & Sugar)

Any food whether packaged or unpackaged contains a low amount of protein, vitamins, phytochemicals, minerals, and dietary fibers, but is rich in fats (saturated), salt, a sugar that is known to have a negative impact on health if consumed regularly or in high amounts.

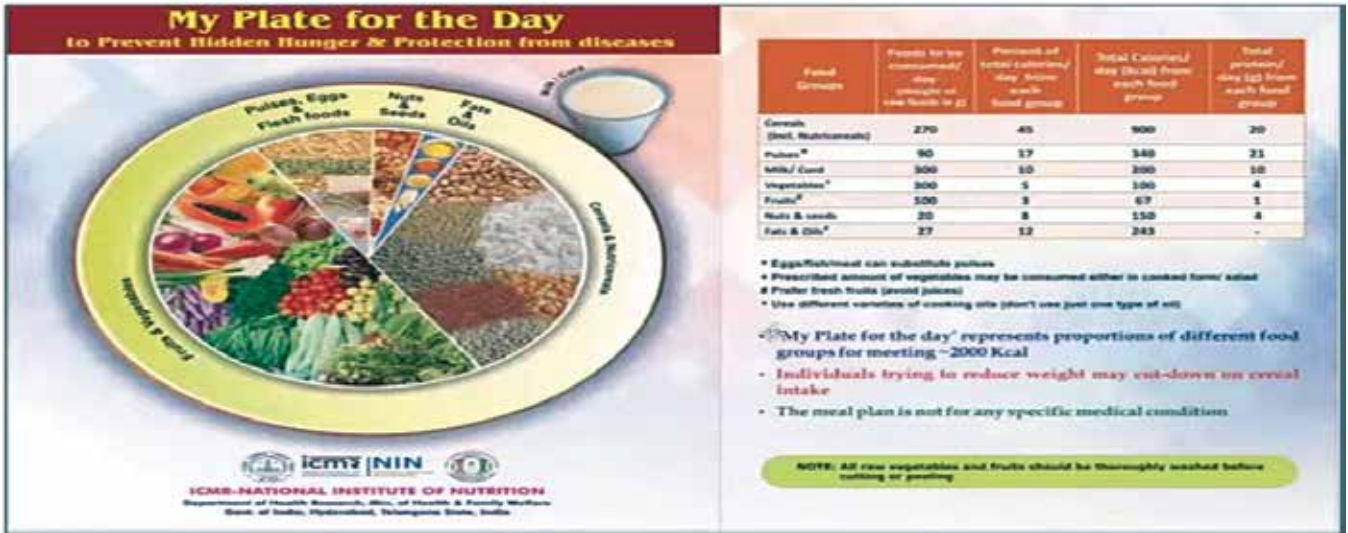
### Dietary needs at Different Stages

1. **Pregnancy and lactation:** First thousand days are the most important days, ladies need to gain 10 -12 kg to avoid lower birth weight, followed by breastfeeding for 6 months, and after 6 months complimentary feeding of different food groups is added.
2. **Breastfeeding:** Breastfeeding should be done immediately within 1-hour, exclusive breastfeeding should continue up to 180 days without any fluid intake even water however breastmilk is provided and can give the ORS or medicine when required. After this semi-solid food can be given as, mother milk is not sufficient but breastfeeding should be continued for 2 years

Note: Importance of mother milk: It is very important as it reduces the baby's risk of obesity, asthma & diabetes, promotes cognitive development of the baby, and reduces the mother's risk of cancer, and osteoporosis.

3. **Infants & Children:** If the nutrition requirement of infants is not fulfilled then it may lead to nutrition issues in children like deficiency of vitamin -A leads to eye problems, vitamin D leads to less bone strength and iron deficiency.
4. **Adults:** Lack of nutrition in children may lead to various health issues such as under or overweight, anorexia, bulimia, iron deficiency anemia, menstrual disorder and PCOD, early pregnancy issues which are more common in rural areas, and drug abuse. There are also various non-communicable risk factors in adults such as diabetes, cardiovascular diseases, stroke, chronic respiratory diseases, etc.





5. **Elderly:** People suffering from anorexia, loss of the tooth, physical discomfort, change in body composition, change in the gastrointestinal tract, and change in respiratory functions.

Note: Balance & nutrition diet in the elderly is important, they should be provided with an adequate amount of calcium and vitamin D, must reduce sweet and high-fat food, consume more fresh fruits and vegetables, adding a rich number of dietary fibers.

### Conclusion

Diet is the most important aspect, 50% of the disease can be managed by the diet itself. If the person does Yoga but does not adopt a healthy eating habit, then the Yoga practice doesn't give the desired benefits. Hence, Yoga practice is essential but along with it taking care of the diet is also equally important. ■



The image has been taken from "Healthy Eating and Lifestyle for Good Health" online webinar



**Ms. Ritika Samaddar**  
Chief Clinical Nutritionist,  
Regional Head,  
Dept. Of Clinical Nutrition &  
Dietetics, Max Health Care

# Adolescent Nutrition- Key to a Healthy Nation

Ms. Ritika Samaddar is a Chief Clinical Nutritionist, and a Regional Head of, Department. Of Clinical Nutrition & Dietetics, Max Health Care. She is also a certified sports nutritionist from the International sports science association, California.

## Abstract

Reap what you sow is the famous saying that holds true for adolescent nutrition. Investing in an age of opportunity will break cycles of poor health and low quality of life. Globally, adolescents constitute about 17% of the total population. In India, adolescents constitute 20.9% of the total population. Adolescence is the podium of a transition period with increased metabolic demand for a growth spurt and development and heightened psychosocial sensitivity.

## Introductory Remarks

Director MDNIY highlighted that adolescent age shapes one's personality in terms of physical appearance, mental attitude, and social behavior. If during the age of adolescence good eating habits are inculcated then it will help to overcome psychosomatic ailments or non-communicable diseases.

Puberty set-in typically around 10-13 years in girls and 11-14 years in boys, it's indeed a rewarding investment to pay heed to the nutrition requirements of each adolescent for the healthy future ahead.

**M**s. Ritika Samaddar highlighted Adolescent Nutrition- Key to a Healthy Nation on 17<sup>th</sup> September 2021.

## Importance of Nutrition during Adolescent

- The phase of life experiences sharpens during this period and there is an increase in physical growth and development.
- Food habits and food style change drastically during this period which may have a longer-term impact on health and life.

- Increased nutritional demand due to increasing physical and mental growth.

## Essential Nutrients in a Diet

Protein and Iron are the major nutrients that are essential in one's diet.

### 1. Protein

- Protein is vital to fight viral and bacterial infections.
- The amino acids that are found in protein form the building blocks of all the body's cells which include cells that enhance immunity.
- High-quality amino acids in the diet are essential in maintaining immune system cell structure.
- Non-veg sources include egg, chicken, and fish.
- Many vegetables and grains are also excellent sources of many of the immune-stimulating amino acids - lentils, broccoli, mushrooms, nuts, and seeds & dairy.
- Intake of protein should be 0.8 to 1.0 gm. / kg body weight.

### 2. Iron

Iron plays an important role in maintaining hemoglobin,

skin, hair, and nails especially, in women during the time of menstruation, women of childbearing age, and pregnant and lactating women. It is also helpful when a person feels a lack of energy, fatigue, headache, depression, irritation, lack of concentration, etc.

### Effect of Convenience Food on Health

Convenience foods are lower in vitamins, minerals, and fiber, but high in calories, added fat, sweeteners, and sodium. The Common long-term outcomes of having these fast-food items include: -

- Acne
- Overweight and Obesity
- Hyperlipidemia
- Hypertension
- Diabetes

### Impact of incorrect eating habits on adolescents

Changes in diets and physical activity levels, overweight and obesity are emerging problems, particularly among adolescents. The consumption of processed foods high in fat and sugar is rising, and adolescents and adults are becoming increasingly sedentary. Being overweight and obese in adolescents is associated with obesity in adults, which increases the risk of diabetes, hypertension, and CVD.

### Conclusion

Hence, appropriate diet and eating habits are the key to healthy nutrition. The inclusion of a variety of food from all food groups throughout the day to maintain the requisite health is important. Regular exercise is essential as the nutritional value not only increases by consuming good food but also with regular physical activity and a positive mindset. ■



The image has been taken from "Adolescent Nutrition-Key to a Healthy Nation" online webinar



**Ms. Shahla Akbar**  
Senior Nutritionist and  
senior lecturer at Dayawati Modi  
Academy, UP

# Nutrition during Lactation

Ms. Shahla Akbar has completed her education from the University of Delhi. She has worked in AIIMS, New Delhi, Vivekananda Hospital, Moradabad, and several other hospitals. She has delivered various talks on diet & nutrition on All India Radio.

## Abstract

A healthy nation is built by a healthy young generation. The generation can be beneficial if only they get proper nutrition during their early childhood years. The lactation of a newborn plays an essential role in this. Adequate nutrition for a lactating mother is also very important. Food should be more nutritious and balanced during lactation so that it can fulfill the need of the mother and infant too. The very motto of today's lecture revolves around the issues related to diet and nutrition, required during the lactation period.

## Introductory Remark

Director MDNIY highlighted that lactation plays a very important role, as it helps the child to grow healthy. Many of the disorders which can occur due to malnutrition can be prevented by the proper diet during the lactation period. In India, there are two diversities, one is malnutrition and the other is overnutrition, both are not good. Hence, maintaining balance is important.

**A**n informative lecture was delivered by Ms. Shahla Akbar wherein she highlighted the relevance of Nutrition during Lactation on 24<sup>th</sup> September 2021.

## Importance of adequate Nutrition

Nutrition is the process of taking in, utilizing, absorbing, and digesting food. Nutrition is different for everyone. It depends upon various factors such as body, activity performed, and physiological condition. The diet can vary according to physiological conditions such as fever, pregnancy, etc. One of the physiological conditions is lactation. Lactation is the period after pregnancy when the mother is nursing and breastfeeding the child. The nutrition requirement of the mother increases during this period as the mother holds the responsibility of caring for the child. Hence, a balanced diet for lactating mothers is as important as during the time of pregnancy.

It is important for the mother to breastfeed the child for at least 6 months. The mother milk is totally sterile and full of antibodies. The first milk contains a substance named colostrum; this provides natural immunity to the child. After six months of breastfeeding, the child must be given an additional diet to prevent malnourishment. If only breastmilk is continued for a long period of time, then it can make the child addicted to it and start to avoid any other supplementary diet. Also, as time progress then the breast milk is not sufficient to provide nutritive value to the child. Hence, after six months to one year, the child should be provided with a bottle of milk and a supplementary diet along with breast milk. The quality of the mother's milk depends upon the proper diet of the mother. If the diet is not proper and balanced, then the quality of milk will also be less nutritious. Hence lactating mothers should intake extra 500 calories in diet with increased protein up to 25 grams than the normal. Apart from daily calories and protein, an increased amount of calcium, iron, and other nutrients are also required.

People with non-vegetarian intake are on the upper hand as animal protein is considered a class protein that serves a good amount of protein requirement because of the essential amino acid. However, for vegetarians, the diet includes two eggs daily, soybeans, besan, and three glasses of milk per day to meet the daily protein requirement for lactating mothers.



The nursing mother secretes 500 ml of milk per day in the first month then gradually increases to one liter. A well-fed lactating mother secretes around 850 ml of milk per day. Hence, additional nutrients should be given to the lactating mother for sufficient secretion of milk.

### Guidelines by the Indian Council of Medical Research (ICMR)

The guidelines of the daily nutrition intake depend on the various age group and the physiological need. The nutrition guidelines for lactating mothers are as followed: -

The lactation period is divided into two parts: -

- 1. 0 – 6 months:** Maximum milk is secreted in the first six months. In this time period, there should be an increase in food intake than normal. example: Diet should be increased with food such as cereals, milk, milk products, vegetables, curd, rice, and ghee, for protein include egg, fish, mutton, soybeans, grams, peanuts, almonds, etc.

  - Calcium And Phosphorus: It includes milk and its products milk, paneer, milk ice-creams, milkshakes, etc. Supplements can be added by doctors if required.

Note: When the calcium requirement in the body is not fulfilled then, the body starts to take the calcium from the bones this is called decalcification.

- Iron: It is also a very important aspect, however, iron and vitamin C are not present in milk. For normal women, the iron requirement is around 24 mg, but during lactation, it increases to 30 mg. Iron-rich food includes all green leafy vegetables and flour. With green leafy vegetables, one can also sprinkle lemon which boosts the quality of iron.
- Vitamin–A: Orange and yellow color fruits and vegetables are rich sources of it. If the deficiency of vitamin -A occurs then it can lead to night blindness.
- Vitamin–B: It is in fruits and vegetables in raw form.

- 2. 6 – 12 months:** The amount and quality of milk start decreasing in the mother hence, after 6 months the nutritional requirement of the mother is also reduced. If the woman at this time period is still taking more than the required diet, then it can lead to weight gain.

### Conclusion

Yogic practices like Asanas and Pranayama is important to maintain a healthy body however, without control over the food then, all these practices will not be able to provide the required benefits. Hence, along with all the yogic practices, there must be a focus on the diet to maintain a healthy lifestyle. ■



The image has been taken from "Nutrition during Lactation" online webinar





**मोरारजी देसाई राष्ट्रीय योग संस्थान**

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