

Indian Society for Sleep Research

25

Glorious Years

Celebrating 25 years of service to the nation in advancing
Sleep Medicine and Sleep Science
1992-2017



ISSR sincerely acknowledges Sriji S Nath and Chaithanya Leon,
the two young sleep researchers for their contribution in compiling this booklet



Indian Society for Sleep Research

Objectives

The purpose of the Society is exclusively scientific, academic and literary.

The aims and objectives of this Society shall be to:

- Σ Foster research on all aspects of sleep and wakefulness;
- Σ Provide a forum for the exchange of information pertaining to sleep research and sleep medicine, including holding of periodic scientific meetings;
- Σ Promote education and training in sleep-wakefulness research;
- Σ Establish and maintain standards of reporting and classifying data in the field of sleep-wakefulness research;
- Σ Provide a common forum for interaction between the members working on different aspects of sleep research and sleep medicine.



This September, the Indian Society for Sleep Research is celebrating its 25 years of service to the nation in advancing sleep medicine and science. It is an honour to serve the ISSR as the President during the 25th anniversary. It is being celebrated along with the triennial conference at Dona Paula, Goa during September 20-23, 2017. On this

occasion the Executive Committee decided to bring about a booklet on ISSR depicting its journey, activities and achievements to commemorate this landmark event.

ISSR is the oldest sleep society in India. It has made considerable progress during the last 25 years, but there is still much more to do and to achieve. We have now about 200 life members, 300 biennial members and 10 honorary members. In addition, we have accepted more than 200 AAPIOS members as corresponding members of the ISSR. The society started with 40 members. It has increased its membership services through its regular ISSR newsletter 'Sleepwatching India' and the 'ISSR Literature Update'. It is the hard work of our team mate Dr Tripat which has made this activity attractive, interesting, regular and timely. During last 25 years the society had conducted three international congresses (in 1992, 2005 and 2014) which included the Second Interim Congress of the World Sleep Federation. It has been conducting regular National Sleep Medicine and Sleep Technology Courses during the last 10 years with the contribution of volunteering faculty from India, USA and Japan, led by Dr Deepak Shrivastava. Its popularity and demand has gone up enormously. We are also organizing triennial national conferences at regular intervals. Our activities have gone beyond organizing courses and conferences. With the initiative of Prof. Clete Kushida, President of World Sleep Federation and World Sleep Society, ISSR is conducting certification examinations for Indian sleep specialists. So far 25 doctors have been certified through this examination. ISSR has started sleep laboratory accreditation to standardize the quality services of sleep evaluating facilities. Neurology and Sleep Centre, New Delhi is the first ISSR accredited sleep laboratory. Recently the sleep laboratory of Himalayan Institute of Medical Sciences, Jolly Grant, Dehradun had been accredited.

India is a vast country with a huge growing population. Rapid urbanization and migration of rural population to urban areas are changing the sleep habits and sleep hygiene of thousands of people. Teenagers form the biggest group who undergo voluntary disruption of sleep schedule and sleep deprivation, because of educational and age related stresses. Sleep laboratories are mushrooming in the country and there is no control over the quality of the service that they provide. General physicians need to be updated about their knowledge of sleep

medicine. There is a huge demand for sleep technicians in the country. We need to train them to fulfil the job requirements in the country. I request our sleep physicians to advertise their job vacancies through our website and newsletter. The society is engaged in educating the public about the importance of healthy sleep. It is also educating the public about the consequences of sleeping less, sleeping late, drowsy driving, impact of blue light and awareness about common sleep disorders.

Whatever the society is doing is just a drop in the ocean. The role of the government is very important to recognize sleep loss as a health issue. But the Government is in deep sleep in this regard, as we have not been able to wake up the policy makers about the importance of sleep and sleep disorders. Industry and media should be given the credit for the negligible awareness that has come amongst the public. Sleep is not a priority area for the government for research funding. It is important to have a chapter in school curriculum about the importance of sleep in health. Probably it is more important than to have a narration about the invasion of Chengiz Khan. The influential sleep physicians are busy in silencing the snores. Obstructive sleep apnea is not 'the be all and end all' of sleep disorders. We have to address the question of sleep hygiene and the entire spectrum of sleep disorders. ISSR acknowledges its good relationship and the cooperation that it has with the Japanese Society of Sleep Research, Asian Sleep Research Society, American Association of Physicians of Indian Origin-Sleep and the World Sleep Federation for their positive support in advancing sleep research and sleep medicine in India. The night is approaching, and we have many dreams to be fulfilled. We are looking forward to the leadership of the budding young sleep physicians and researchers to guide the country to greater advancements in this field in the coming years. Sleeping well and sleeping on time promote health and longevity. In this context the message that we want to convey to the mankind on the eve of 25th anniversary of ISSR is SLEEP WELL, SLEEP ON TIME.

Hrudananda Mallick, MD, PhD



Messages



Congratulations on the 25th Anniversary for Indian Society for Sleep Research (ISSR)! This is a very important milestone not only for the ISSR, but also for the international sleep and sleep research community. It is anticipated that the ISSR will continue to flourish, and all of us in the field of sleep research look forward to even more outstanding achievements by its leadership and members. Congratulations again on this historic accomplishment.



Clete A Kushida, M.D., Ph.D
President, World Sleep Society



Asian Sleep Research Society

August 26, 2017

On behalf of the Asian Sleep Research Society (ASRS), I would like to extend my hearty congratulations to the Indian Society for Sleep Research (ISSR) as it celebrates its 25th anniversary.

India has dedicated great effort to the development of the ASRS since our founding in 1994. I feel particularly indebted for the distinguished contribution rendered by Professor V. Mohan Kumar, who served as ASRS President between 2004 and 2006, and by Professor Hrudananda Mallick, who has served as ASRS President since 2013.

Over the years, the ISSR has produced numerous research reports of the highest quality on the science of sleep, helping it cement its important presence, not only for our ASRS, but also for the World Sleep Society.

I wish the ISSR all the very best in its further development, and look forward to its future endeavors



Professor Yuichi Inoue
Secretary General
Asian Sleep Research Society (ASRS)

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Ken-ichi Honma, M.D., Ph.D.



We never forget the pioneers who dug the well.

First of all, I would like to congratulate on the Silver Jubilee of ISSR. I am pleased to have this day as a witness who had an honor to watch the birth of ISSR in 1992. Since then, ISSR became one of the strongest sleep societies not only in Asia but also in the world. As a Vice President of ASRS, I would like to express my sincere gratitude to ISSR for its long-lasting

contribution to ASRS, especially to two big scientists, Professors Dr. Mohan Kumar and Dr. Hrudananda Mallick, who took the initiative in establishing and developing ASRS as Presidents. ASRS is a society based organization in Asia and has consisted of 9 principle societies including ISSR. ASRS used to belong to World Federation of Sleep Research and Sleep Medicine Societies (WFSRSMS), a society based organization. In 2011, we held a quadrennial congress, World-sleep 2011, in Tokyo. We had a great success. A few years ago, WFSRSMS decided to merge with World Association of Sleep Medicine (WASM), an individual based society, and has changed its name to World Sleep Society (WSS). The first world congress will be held in Prague this October. As the previous names suggested, WFSRSMS focused on both basic and clinical researches, while WASM is interested mainly in clinical issues. About that time, several member societies of ASRS seemed to lose their enthusiasms for ASRS, because they have more clinical minds and a new WSS was no more based on regional sleep societies. However, to my opinion, we need an organization which contributes to the development of sleep science in Asia and introduces sleep science to researchers in other fields in Asia such as chronobiology by means of regular communication. In this regard, I really hope the leadership of ISSR will work for the further development of sleep-related sciences in Asia. Finally, I am very honored to be invited to the Silver Jubilee of ISSR and hopefully will attend the Golden Jubilee of ISSR in 2042.



Japanese Society of Sleep Research

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President: Makoto Uchiyama, M.D., Ph.D



Happy Anniversary,

Dear members of the Indian Society for Sleep Research,

It is a great honor and pleasure for me to address you in my capacity as the President of the Japanese Society of Sleep Research (JSSR). I would like to congratulate all of you on the 25th anniversary of the Indian Society for Sleep Research (ISSR). I wish you another year of accomplishment and growth.

We have been real friends. The ISSR and JSSR have collaborated with each other in various sleep research activities and cultivated a friendship as leading members of the Asian Sleep Research Society (ASRS) since 1994 when the first ASRS meeting was held in Tokyo. In fact, the members of both societies have made efforts together in arranging and chairing symposia or workshops in many international congresses. We are holding a joint symposium of JSSR and ISSR in the ISSR Silver Jubilee Conference to be held during September 20-23, this year.

Finally, I would like to say Happy Anniversary again to ISSR members and wish all success to the Silver Jubilee Conference in Goa.

Sincerely yours,

Makoto Uchiyama, M.D., PhD.

President of Japanese Society of Sleep Research



Prof. Jean Askenasy
President of Israeli Sleep Medicine Association

PROF. JEAN ASKENASY

Twenty-five years have passed since the foundation of the Indian Sleep Research Society, twenty-four years since the foundation of the Israeli Sleep Medicine Association and twenty-three years since the foundation of the Asian Sleep Research Society. I shall start my greetings by citing Dr. Asis Kundu, a distinguished psychiatrist from Bankura in India, who wrote in the ASRS Newsletter in 1996: "Only twelve nations have sleep researchers in Asia, but the continent of Asia is from Tokyo to Tel-Aviv. The dormant nations of Asia should be aware of its recent advances". At that time ISSR had 50 members, today there are 500-members in the society. The Indian Society for Sleep Research (ISSR) celebrates its Silver Jubilee in 2017 along with its 25-year period of service to the Nation in advancing sleep science and medicine. The word "jubilee" originates from the Hebrew word "Iovel", which means 50 years. In ancient Greek *iuzo* (ἰϋζω: shout), was derived from the Proto-Indo-European root *yu- meaning "shout for joy". Pope Paul II decided in 1470 that jubilee will be celebrated every 25 years. Therefore, we consider 25 years as half jubilee or "Silver Jubilee". We all agree that the "shout of joy" at the 25 years celebration of the Indian Sleep Research Society is a significant event. The celebration of our distinguished friend Professor Mohan Kumar, who was the earlier Indian Sleep Research Society President, justifies the meaning of the jubilee as a "shout of joy". We are confident that the successor, Professor HN Mallick will continue the project and will advance the creative Indian scientific research to new achievements. The Indian sleep researchers are worldwide acknowledged, respected and appreciated at the international level. Under the prestigious directives of Mohan Kumar, HN Mallick, Bindu M. Kutty, Kamallesh K Gulia and Manvir Bhatia, distinguished researchers such as Manjari Tripathi, Preeti Devnani, Usha Panjwani, Deepak Shrivastava, B N Gangadhar, T R Raju, BSS Rao, Laxmi T Rao, John P John, Ravi Yadav, Sanjib Sinha, Ravindra PN, Chetan Mukundan, Arun, Ajay Nair, Alkesh Kumar Khurana, Arpita Priyadarshini, Anita Jagota, Chaturvedi S.K, Drubjyoti Roy, Edwin Gomes, Ferreira Teresa, Kripesh Sharma, Lavanya Gali, Garima Shukla, Gouri Kumanaini, Ghulam Husain, Jayaram M, Jha S.J., Ravi Gupta, Rajanish Sharma, Sandip Sardesai, Sapna Erat Shreedharan, Saurav Das, Shashi Bala Singh, Shivaprasad Goudar, Yvonne Pereira and Vikram Sarbhai, are bearing the flame of sleep research further away.



We are confident that the successor, Professor HN Mallick will continue the project and will advance the creative Indian scientific research to new achievements. The Indian sleep researchers are worldwide acknowledged, respected and appreciated at the international level.

The related anniversaries of the Indian and Israeli Sleep Research Societies can be considered as a polygamic wedding anniversary, along all the national Sleep Societies of ASRS.

It is my pleasure and honor to extend you a warm salute of sincere friendship and wishes of success and happiness on behalf of Israeli Sleep Medicine Association.



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- Σ Robert Thomas, MD
- Σ Neeraj Kaplish, MD
- Σ Meeta Singh, MD

Greetings and salutations from USA to the members and attendees of the ISSR on its 25th anniversary.

Over the past 10 years I've had the honour of working with several leaders and members of the ISSR. Both through the National sleep medicine course and as President of American Association of Physicians of Indian origin in sleep (AAPIOS), I have been amazed at the work ISSR is doing.

In recognition of this outstanding and groundbreaking work, AAPIOS leadership in the last several years has unanimously chosen to honour esteemed members of ISSR.

In 2014 Dr. H. N. Mallick was awarded the AAPIOS Lifetime Achievement Award in Minneapolis. In 2015 Dr. V Mohan Kumar was awarded the AAPIOS lifetime achievement in Seattle. At the 2016 annual AAPIOS meeting in Denver, Dr. Bindu M Kutty was unanimously chosen for an award for outstanding contribution in sleep research. The 2017 AAPIOS awardee is Dr. Manvir Bhatia.

For the last 10 years ISSR has held the National Sleep Medicine Course in different parts of India. It is the only sleep medicine course in India which brings both basic researchers and clinicians together. These conferences and the tireless research and teaching that ISSR members are involved in have led to huge advances in sleep medicine in India and the rest of the world.

Thanks to your commitment and selfless work, today India marches in unison with the western world in the field of sleep medicine.

I bring to you heartfelt good wishes admiration from the leadership and members of AAPIOS and the Indo U.S sleep medicine community.

We look forward to a long and productive collaboration as we together endeavor to unravel the mysteries of sleep.

Sincerely

Anuj Chandra MD, ABSM

Diplomate Sleep Medicine (ABIM)

Diplomate Sleep Medicine (ABSM)

Chairman, Advanced Center for Sleep Disorders

Founder and President AAPIOS.

Mission: To promote ongoing interactions between sleep physicians in the US and in India so as to facilitate educational, clinical, research, cultural, professional, and intellectual exchange of ideas and opportunities.

<http://www.aapios.org>

Founding Meeting of Indian Society for Sleep Research September 10, 1992

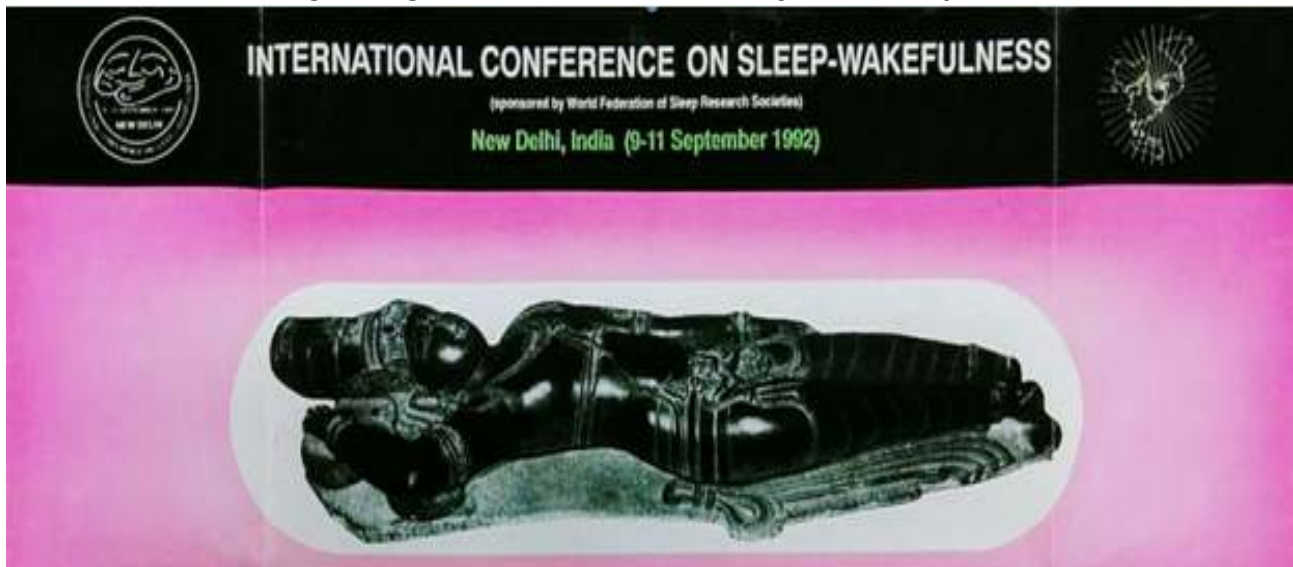
The founding meeting of the ISSR was held on 10.09.1992 at Hotel Sofitel Surya, New Delhi. About 40 members attended the meeting. The general assembly was chaired by Prof. Usha Nayar, Head of the Department of Physiology, AIIMS, New Delhi. During the meeting important matters like the name of the society, aims and objectives and composition of the executive body were discussed. The election of first executive body was held in this meeting. The name of Padma Bhushan Prof B. Ramamurthi, the renowned neurosurgeon was proposed for the post of President by Dr. T. Desiraju which was seconded by Dr. S. Suri. Prof B. Ramamurthi was unanimously elected as the first President of ISSR. Eminent neurophysiologist Dr. T. Desiraju, was elected as first vice-president, Dr. V. Mohan Kumar was elected as general secretary and Dr. H. N. Mallick was elected as first treasurer of the society. Prof Shojiro Inoue and Prof Soichhi Katayama from Japan were the observers. Prof S. Inoue was made the first honorary member of the society.



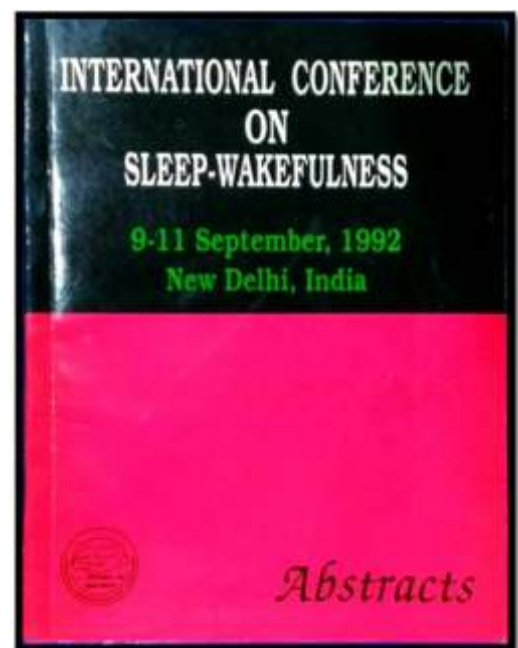
Founding Members of ISSR

Prof. B. Ramamurthi
Dr. T. Desiraju
Dr. M.K Chandrashekarani
Dr. A. Namasivayam
Dr. S.H. Singh
Dr. V.K. Agarwal
Dr. H. Jana
Dr. Girish Jha
Dr. Sushil Singh
Dr. Noor Alam
Dr. Mahesh Thakkar
Dr. Seema Gulyani
Dr. Sangeeta Singh
Dr. Joshi John
Dr. Sandeep Sood
Dr. Kishore Chandiramani
Dr. Sanjay Phadke
Dr. Ram Sharan
Dr. Ramesh V.
Dr. U.S. Ray
Dr. D.P.S. Rathor
Dr. S.P. Pal
Dr. P.K. Sethi
Dr. A. Ansari
Dr. Surjit Singh
Dr. Somnath Chaterji
Dr. B. Gitanjali
Dr. K.S. Anand
Dr. S. Kaul
Dr. Dilip Shah
Dr. Naseem Ahmad
Dr. Fakhrol Ishan
Dr. Lajpat Rai
Mr. M.S. Bhadoria
Dr. Vinod Goyal
Dr. U. Nayar
Dr. V. Mohan Kumar
Dr. H.N. Mallick
Dr. S. Inoue (Honorary)

Founding Congress of Indian Society for Sleep Research



The International Congress on Sleep-wakefulness was organized by Dr V Mohan Kumar during September 9-11, 1992 in Hotel Sofitel Surya, New Delhi. The conference was supported by World Federation of Sleep Research Societies and its constituent members. The scientific programme committee was chaired by Prof S Inoue from Japan. This was the forum where the “Indian society for Sleep research” was born. This international conference was a landmark in the history of sleep research and sleep medicine in India in which almost 120 scientists from different parts of the world (largely from Asia) participated. It was the first sleep congress in India. The conference also marked the beginning of the modern sleep medicine era in India. The contributions of leading scientists who participated in the deliberations at the various symposia of the conference, have led to the compilation of a monograph titled “Sleep-Wakefulness”.



**INAUGURAL ADDRESS BY THE FIRST
PRESIDENT PROF. B. RAMAMURTHI
THE FOURTH STATE OF
CONSCIOUSNESS
(THE THURIYA AVASTHA)**

**At the International Conference on Sleep-
wakefulness
New Delhi on 9th September 1992**

I congratulate Prof. V. Mohan Kumar and his colleagues on organizing this important international conference for the first time in India and admire their determination and tenacity in arranging such a nice congress in spite of numerous difficulties. It is an honor for me to have been invited to inaugurate this Conference on Sleep-Wakefulness, a subject of continuing interest and mystery. As President of the Neurosciences Society of India, it gives me great pleasure to inaugurate this Congress.

SLEEP—AN INTRIGUING STATE

The phenomenon of sleep has intrigued mankind for many centuries, since human beings began to enquire about nature, their surroundings and themselves. It was, of course, clear that sleep was a necessary concomitant of life and after sleep, energies were restored and the person felt fresh. Was such sleep necessary for living or was it a waste of the third of one's lifespan? Was sleep the concomitant of the darkness-light cycle of the earth. Was this nature's way of protecting the organism from onslaught during the dark hours? Many speculations were raised, but the situation was that sleep was essential.

**MYTHICAL AND LITERARY
REFERENCES**

In India, metaphorical and mythological references to sleep abound. The creator of the Universe, Brahma is asleep and awake during equal aeons of time. When he is awake (during his daytime) the Universe gets created and evolves and when sleeps (during his night time) there is dissolution of the Universe, evolution and involution being inherent in the scheme of creation. In the great Epic Ramayana, one of the demons Kumbhakarna requests a boon of immortality (Nithyathavam) but by a slip of the tongue he asks for sleep, (Nidraithavam) which was granted and he immediately fell asleep. The situation was somewhat retrieved when the Lord relented and granted that he be awake for a short time every six months to feed himself.

In the Bhagwath Geetha, there is a metaphorical reference to sleep wakefulness. The Lord says that a Yogi sleeps when the world is awake and is awake when the world sleeps, meaning that the conscious interests of the Yogi are opposite to those of ordinary men. "Ya Nisa Sarvobothanam thasyam jagrathi Samyami".

In more recent literature we have Shakespeare rhapsodising about sleep.

Sleep that knits up the ravell'd sleeve of care,
The death of each day's life, sore labor's bath,
Balm of hurt minds,
Great Nature's Second Course
Chief Nourisher in Life's Feast
Macbeth-Shakespeare

The story of Rip van Winkle has provided us the background of many jokes and we have friends asking the office worker, "Oh, do you sleep at home also?"

DREAMS

About the dream state there have been so many conjectures, misconceptions and superstitions. What is this state? Is this a state during which the brain is letting go of some of its pent up energies, or is it readjusting its circuitry that has been disturbed during the waking state by constant bombardment of stimuli and thoughts? Is it the subconscious mind trying to come up and relieve? Mankind has often believed that dream predicts oncoming events and in India there is a strong belief that dreams that occur early in the morning may predict events.

We have also "day dreaming" and "dreams that come true" as Mohan Kumar may say when the new Society comes into being.

Serious research on sleep has been possible only after our understanding of the functioning of the brain improved during the early years of this century and the advent of the EEG provided a reasonable tool. The progress of research in Sleep Wakefulness has been exciting during the past two decades and we have many interesting papers in this conference.

**INDIAN SOCIETY OF SLEEP-
WAKEFULNESS**

During the last fifty years the progress in neurosciences in this country has been impressive and is well outlined in the book of Neurosciences in India "Prospect and Retrospect" published by the Neurological Society of India. Hence this First

Conference on Sleep Wakefulness and the decision to form an Indian Society for Research into Sleep-wakefulness are indeed welcome moves. There is no doubt that this will give fillip and create enthusiasm among Indian Neuroscientists to work in this important field. This field has a special reference to India and Indian scientists as I will try to explain below. Apart from the areas of research already well delineated there is a special area which I would like to emphasise. Neuroscientists have recognized three state of consciousness, the waking state the sleep state and dream state. Are there only these three states possible in the human brain? Has the human brain reached the “end of” its capacity in just being awake, asleep or dreaming. This seems to be a dull end for such a fascinating creation in nature, namely the human brain.

At this Conference, held in India, I would like to place before this interested audience the concepts of consciousness and of sleep wakefulness in Indian thought and also try to indicate how some of our future research activities may perhaps be shaped.

CONSCIOUSNESS – DIFFERENT CONCEPTS

“Consciousness” has interested Indian Rishis for many centuries and Pragyā has been discussed and defined long ago. The concept of consciousness of the ancient Hindus differs from the biologist's concept of consciousness. For the biologist “consciousness” is the ability of the organism to react to environment and this definition is quite satisfactory to medical scientists also. Doctors assessing the higher neurological functions of the patients call the patient “conscious”, if he reacts in some form or other to environmental stimuli.

Consciousness must be clearly differentiated from awareness, though many Western thinkers often interchange the term. Awareness is a high form of consciousness and involves higher neural mechanisms including stored memory and recall.

Above the level of “awareness”, comes “self awareness” so well seen in human beings and perhaps also in higher apes. We or our Self is aware that we are aware. This “I”ness or self awareness is called Ahamkara in Sanskrit. At what level of evolution of the brain does this “I”ness begin, is difficult to assert. I propose that this “I”ness concept is dependent on the development of the temporal lobe. The evidence is that in many cases of temporal lobe epilepsy, there is a transitory disturbance of this “I” and self

awareness. During an attack, self awareness may be impaired or the feeling of “I” stands separated from the body and its actions.

THE HINDU AND BUDDHIST CONCEPTS

The philosopher's concept of consciousness is different from that of the bio-scientists.

The Hindu concept is that all the Universes (named Cosmic Eggs or Brahmandas) are pervaded by a force of power that is called the Paramathma or Universal consciousness. Parts of the quantum of this Universal Consciousness get limited by Time and Space, resulting in the material body, which is perishable. These quanta of consciousness are called Athma, (derived from Paramathma). If one could transcend the material body, we can realize that we are nothing but parts of the Universal Consciousness. Buddhist concept is somewhat similar, Chu being the basic substance of the great life force and as such is a limitless continuum.

THE FOURTH STATE (THURIYA AVASTHA)

The manifestation of consciousness varies at different times in every individual. Consciousness itself being a constant entity, it is our relation to consciousness, that determines our state of wakefulness or sleep. The Hindus had recognized wakefulness (Jagrathi), Dream state (Swapna) and Sleep state (Sushupthi) and differentiated them clearly and distinctly. More important still, they has postulated, defined and demonstrated the existence of a **FOURTH (THURIYA) STATE OF CONSCIOUSNESS** which is neither ordinary wakefulness nor dream nor sleep.

What is this Fourth or Thuriya state? This is defined as a **state where the mind is still and there are no thoughts** (No Chitham and No Chintha). In this state the pure consciousness of the individual manifests itself like a mirror becoming apparent when the dirt and dust are cleared.

**“THADHA DHRISHTUHU SWARUPE'
AVASTHANAM”**

**“VRITHI SAROOPYAM ITHARATHRA”,
(Patanjali's Yoga Suthras)**

Then (during Thuriya State) “the Seer is firmly established in his original state. “In all other states, the seer, (the individual) identifies himself with the mind and thoughts”. These are clear statements of Patanjali, the great Yoga teacher. The concept is that the true individual is pure consciousness and the body, the senses, mind and thoughts limit the power and manifestation of this

consciousness.

MIND – LIMITED CONNOTATION

In Hindu psychology, mind (Manas) has only a limited connotation and does not have the comprehensive significance as in Western psychology. In Hindu thoughts the senses make contact with objects and the mind behind them perceives the sense objects and is responsible for likes, dislikes, joys and sorrows. Above the mind, it is Buddhi or discriminatory power and above this is the “I” (Ahamkara). The “I” can often perceive the mind act and also perceive the discriminatory power, restraining the mind. Pure consciousness is the base on which all these rest.

It is clear from Hindu and Buddhist concepts that the “I”, i.e. you or me are not our mind or our thoughts, but something beyond because we can easily stand back from our mind or thoughts and observe them. The goal of man should be to understand who the “I” is. However, the “I” can be experienced only in the Fourth State of Consciousness, the Thuriya state.

The human brain has evolved to a stage when it can think and be aware of its thoughts; in Western physiology and psychology, thought is the ultimate function of the brain. Present neurophysiology ends with thought processes.

THOUGHTS – NOT THE ULTIMATE REACH OF THE BRAIN

Now may I suggest to this distinguished gathering of scientists that our study and research must go beyond the boundaries fixed by our preconception – that thought is the Ultima Thule of brain function it has no further capability. This concept has been ingrained in us by our scientific upbringing based on theories of logic and reason and limited by Cartesian-Newtonian models of ourselves, our earth and the universe.

BEYOND LOGIC AND REASONS

In the recent years our colleagues, the physicists, faced with the problem of trying to understand the nature and movement of subatomic particles, found that logic and reason on which classical physics was based did not take them forward and different models and concepts have to be adopted to explain these phenomena. Thus started the concepts of “uncertainty principles”, “illogical computing” etc.

Many of you know that the great teachers of Zen Buddhism make every effort to break down the bondage of logic and reason from the mind of the aspirant, by giving them “koans” to meditate

upon. The koans are impossible conundrums and powers of the brain beyond reason or intellect are needed to solve the koans. As these teachers have gone beyond intellect the reasons, it is obvious that our brains have power greater than we credit them with.

SEARCH BEYOND CLASSICAL BOUNDARIES

As neurophysiologists interested in sleep wakefulness it will be a pity if we stay with classical physics and impose a boundary on the powers of the brain, which according to Eastern seers are far beyond what we imagine. It may be stressed here that this is not mere speculation but a real experience – a state experienced by many rishis in India, China and Japan, the whole of the Orient.

POSSIBLE NEUROPHYSIOLOGY

Nature protects an organism from the continuous onslaught of sensory impulse, through numerous inhibitory mechanisms at different levels throughout the sensory system. The mechanisms often operate unconsciously. These can also be selective as in a mother sleeping in a busy railway station responding immediately to her infant's crying. Whether these inhibitory mechanisms can be activated whenever we want or “at will” is an interesting question.

INHIBIT AND IGNORE

Can we train our will to ignore these stimuli especially when the stimulus is strong (even painful) or when the stimulus is of a pleasurable nature? “Yes, we can; by practice” says the Science of Yoga. In Yoga the brain is gradually trained to ignore sensory impulses both exteroceptive and proprioceptive. With practice, even nociceptive stimuli can be prevented not only from reaching consciousness, but also from causing limbic or autonomic responses, usual concomitants of painful stimuli.

It is clear that higher cortical areas can exert control over incoming impulses. This control occurs at many inhibitory levels and not only in the reticular system. If too much suppression of reticular mechanisms occur, sleep may be induced. But the reticular system has to be involved in major way in deep meditation for such intense inhibitory control of impulses to be possible.

THURIYA IS NOT A SLEEP STATE

In the Yogic state of deep meditation, therefore, there is a complete inhibition of the entry of

sensory impulses in the brain. During this practice, as less and less sensory impulses reach the brain, sleep often supervenes automatically for a few minutes, but the yogi has to get over this tendency gradually; Deep Meditation is not a “sleep state”. As the meditator is gradually controlling his thoughts he may adopt either of the two techniques. One is to suppress actively the thoughts that arise and concentrate only on the thought. The other technique is to allow whatever thoughts arise to flow through the mind, without in anyway controlling them. “To stand back and observe”. In course of time, the extraneous thoughts die down and only one thought will be left. After some more practice, even this one thought dies down and the Yogi reaches the thoughtless state.

“Standing back” is the very essence of Buddhist Vipassana meditation – this is also clearly mentioned in the Bhagavad Geetha, “Runah Guneshu Varthanthy Iti Mathva Na Sajjathe”. Realising that natural elements like mental waves and disturbances reside in the nature of our body, the wise man does not get attached (he stands back).

THOUGHTS ARE EVENTS

Thoughts arising in the brain have a corresponding reaction on the body systems. For e.g. denovo angry thoughts, do raise the pulse rate, and the blood pressure. Loving and affectionate thoughts have opposite effect. Most thoughts affect body functions through the limbic system and the hypothalamus. Some thoughts may not have a somatic effect, as conceptual thoughts in philosophy or mathematics. In other words, it is clear that thoughts are events in the brain and influence function in other parts of the brain and in the body. On the reverse it is, of course, obvious that peripheral and somatic events can create thoughts in the brain. Hence we have to enunciate that “events” have to occur in the brain to result in thoughts. As yet the actual nature or the sites of these “events” are not clear, perhaps these occur in the frontal and associated cortices.

Why should it not be possible for our brains to control these thoughts or event and eliminate them at least for a short period of time?

WHERE DO THOUGHTS ARISE?

Some conjecture is permissible here. It is possible that denovo thoughts, conceptual thoughts, and thoughts that arise without sensory stimulation occur through mechanisms in the frontal lobes and the associated cortex.

Conceptual non verbal thoughts may arise from the thalamic areas of the cortex.

As mentioned earlier, the feeling of “I” and mine possibly reside in the temporal lobe as deduced from a study of patients with temporal lobe epilepsy. We are not yet aware of all the functions of the temporal lobes and as a neurosurgeon I do not hesitate to remove the anterior temporal lobe, assuming this area has no specific function!

While thoughts are events that take place in the frontal and associated cortex, the ability to stand back and observe these events probably resides in the temporal lobes which are well developed in the humans. Thus we are able to be observers or “Sakshi” to our mind's activities.

I have talked only of anatomical sites. Surely there would be the involvement of as yet undetected neuro messenger systems in the process.

What happened in the “thoughtless state”? Obviously the brain activity does not stop. In the “thoughtless state”, we are told that brain stops bothering with ordinary things and becomes engrossed in consciousness. “The brain silent and motionless traffics with the imponderable” as Sir Geoffrey Jefferson, the great British Neurosurgeon put it so aptly some year ago.

The brain isolates itself from “unnecessary” activities, and develops its power to comprehend “consciousness” and tries to go beyond time and space and beyond the boundaries of logic and reason.

CONCLUSION

Ladies and gentlemen! I have tried to explain in my limited capacity the magnificent visits that have been indicated to us by our Rishis and Yogis. They have tried to tell us repeatedly that this is not speculation – this is an “experience” – an experience available to all with practice. I believe it is our duty as neurophysiologists and as researchers in the various levels of consciousness to try and elicit the neuro physiological and the neurochemical basis of this state.

I realize the instruments at our disposal are crude and inadequate and the subjects with such experience are difficult to get at. If we can train volunteers to go into outer space, can we not get volunteers who will dare to go into inner space, already deliberated by our ancients.

As for our tools, they are getting more and more refined as with magnetoencephalogram. After all, we can only do our best. The only thing is we must dedicate ourselves with earnestness and with a burning desire to succeed.

The History of Indian Society for Sleep Research (ISSR) from its Inception to the Launching of the Journal "Sleep and Vigilance"

V. Mohan Kumar¹ H. N. Mallick² Deepak Shrivastava³

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The Indian Society for Sleep Research (ISSR) was founded on 10th September, 1992. The founding ceremony was held during the "International Conference on Sleep–Wakefulness" in New Delhi on 9–11th September 1992. This conference also witnessed the formation of the Asian Sleep Research Society (ASRS). On 11th September, 1992, the Founding Committee for the ASRS was constituted with Prof. Shojiro Inoue, of Tokyo Medical and Dental University, as the Chairperson.

The International Conference on Sleep–Wakefulness was the first conference on this subject in India. It was attended among others by RW McCarley, JM Kruger, JM Siegel, PJ Shiromani, JC Rains and M Goswami from USA. K Honda, S Inoue, T Kodama, Y Koyama, Y Kayama, M Okawa, S Honma, K Honma, T Endo, Y Motohashi, S Shinkai, T Okuma, T Okada, T Ohta and Nazkawa were some of the eminent scientists from Japan who attended the conference. The European scientists included M Mancina, AA Borbely, DJ Currie, K Meier-Ewert, AW Katz and T Penzel. EP Sloan and CM Shapiro from Canada, J

Trinder from Australia, JJM Askenasy from Israel and SY Liu from China were the other prominent attendees from abroad [1]. This conference and the formation of ISSR marked the beginning of the practice of modern sleep medicine in India. The ISSR organized the Second Interim Congress of World Federation of Sleep Research and Sleep Medicine Societies (WFSRSMS), during September 2005 at New Delhi [2, 3]. It also organized the 8th Congress of ASRS in September 2014 at Trivandrum, Kerala [4]. Apart from organizing national and international conferences, the activities of the society include conducting national sleep medicine and technology courses, certification programmes for physicians and technicians, and public lectures.

Sleep science and sleep medicine are not new to this part of the world. The importance of sleep and sleep hygiene has been amply advocated in ancient Indian literature. Ayurveda considers Nidra (sleep) as one of the three supporting sub-pillars of good health. Information about ayurvedic medicine is available in the Samhitas (encyclopaedias), written in Sanskrit around 1000 BC, by the great scholars Charaka and Sushruta [5–8]. Sleep research on human volunteers and animals started at the Department of Physiology, All India Institute of Medical Sciences (AIIMS), New Delhi, under the leadership of Baldev Singh in the 1960s. Sleep research got a boost when the International Brain Research Organization, led by DP Purpura, from Albert Einstein College of Medicine, held one of its earliest workshops at AIIMS in late 1960s. Another significant event was the holding of a symposium on "Consciousness" during the XXVI Congress of the International Union of Physiological Sciences in New Delhi in 1974, which had DP Purpura, M Steriade, M Mancina, NP Bekhtereva and MH Chase as some of the participants.

In this country of more than 125 million people, the health care system in India, which is free or

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subsidized,

Sleep Vigilance starts from primary health care centres. From there the patient goes to district headquarters hospital, to medical college hospitals and super speciality hospitals, to seek medical attention for more complicated cases. Doctors at the primary health care centres are general practitioners who usually do not have much training in sleep medicine. This was confirmed by National Academy of Medical Sciences, the pivotal medical organization in India, which conducted a symposium on sleep medicine for medical students. A pre- and post-assessment of the symposium showed the need for quality education in sleep medicine. A subsequent survey conducted by them showed that sleep medicine practically does not find a place in the medical curriculum in India [9].

Though there are more than 300 sleep centres in the country, the certified sleep specialists and technologists are very few. Keeping this background in view, the National Sleep Medicine Course (NSMC) was launched by the ISSR in 2006. This is the biggest annual teaching platform for sleep medicine in this country. The working philosophy of NSMC recognizes the fact that most of the doctors currently practicing in India have neither received sufficient formal education in the basic science of sleep, nor in the clinical practice of sleep medicine [0]. The 'needs assessment analysis' during the 2nd Interim Congress of WFSRSMS highlighted the urgent need for a sleep medicine education initiative in India. The first NSMC was organized at AIIMS, New Delhi during October 14–15, 2006 on an experimental basis with the academic faculty from the USA, Japan and India. The overwhelming response and clinical success of the NSMC 2006 have encouraged ISSR to continue the programme annually on a regional basis since 2006.

Partially owing to the initiatives of ISSR and to media publicity, there has been increased public awareness about sleep medicine. This has led to the growth of this field during the past few years. There is an acute shortage of trained and certified sleep technicians. However, sleep testing laboratories are coming up rapidly. With this growth has come the need for accessible educational opportunities for PSG Technicians/Technologists who perform a crucial role in the diagnosis and treatment of sleep disorders. Apart from the skill needed for PSG recording, the technicians should have some knowledge about sleep physiology, pathology and medicine to get certified by a competent professional body. To meet this need ISSR has been organizing a National Sleep Technology Course,

every year since 2012.

There is also a need for certification of sleep professionals in India, along the lines of American Board of Sleep Medicine or American Board of Internal Medicine. The World Sleep Federation (WSF) came forward to help ISSR conduct Transitional Board Certification

Examination for Indian sleep specialists. Clete Kushida, President of WSF, started International Sleep Medicine Board Certification in five countries including India. A ten-member Indian Board of Sleep Medicine headed by a Chair was constituted in 2010 by the ISSR for this purpose. The WSF has been conducting an examination in July every year (from 2012) on behalf of the Indian Board of Sleep Medicine.

Although we are going to be 25 years old, we have not been able to attract the attention of the government sufficiently to the importance of sleep health and disorders. Sleep hygiene is the major issue for the poorer section of the society in India. A nation which had witnessed Bhopal gas tragedy should have woken up to address the issue of inadequate sleep as a major public health problem. Inadequate sleep in growing children is a burning issue to be addressed without further delay. The taxi and truck drivers and night shift workers constitute a major sleep-deprived group [1]. India has a large workforce which works on night shifts, due to power shortage during the day. The labour law in the country should have stringent rules to ensure adequate sleep to these categories of workers. The ministries of health, labour and education need to put their act together to work out a solution to this issue.

The ISSR will continue to focus its efforts for greater recognition of the specialty of sleep medicine through its multiple initiatives. There is a need to heighten awareness of various sleep disorders among primary physicians and general public [0]. Ongoing public awareness programmes, including schools and transport industry and security forces continue as immediate objectives. ISSR intends to develop a talent pool of well-trained providers including sleep physicians, technicians, and educators through its courses and board certification initiatives. To ascertain the competency of sleep health providers, ISSR will continue its mission of accreditation of sleep clinics and laboratories. Studies have demonstrated that certified status results in improved patient care and outcomes [2]. In collaboration with other organizations, ISSR will develop integrated programs to include primary care providers, and promote the evolving concept of Chronic Disease

Management Model of sleep apnoea. Maintaining its leadership position in the Indian sub-continent and South-east Asia, ISSR will continue to develop and foster strategic research and translational science in the field of sleep medicine.

The ISSR will also strive to give due importance to the Indian System of medicine. We need to find out the efficacy of Ayurvedic drugs for treatment of insomnia. Yoga nidra is a topic that needs to be investigated properly by modern sleep researchers. It is not a happy situation that there has not been much increase in the number of sleep research laboratories over the last 25 years, in spite of Sleep Vigilance

several fold increase in the number of sleep clinics and laboratories. Basic research in sleep science is something that should not be neglected even if the funding agencies are not coming forward with their support. Most of the trained researchers are leaving the country for jobs overseas. We can be happy about the fact the country is witnessing the growth of sleep medicine as a multi-discipline. At the same time, we need a National Institute of Integrative Sleep Medicine to produce well-qualified sleep health professionals for a big country like India.

During the last 25 years, ISSR has achieved name and fame nationally and internationally. ISSR is going to celebrate its 25 years of service to the Nation in advancing sleep science and medicine. On this commemorative occasion, as an attempt to serve the global sleep science and sleep medicine community, we are undertaking our latest initiative, i.e. launching the international journal "Sleep and Vigilance". Our earnest desire is that this journal will provide the platform for talented scientists to publish their latest findings on the basic, theoretical, applied and clinical aspects of sleep and vigilance, including wakefulness, attention, alertness and consciousness.

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REVIEW ARTICLE

Sleep medicine education in India

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Abstract India is an ancient country with a vast population, diverse geography and culture. Although sleep medicine has been rapidly progressing during the last decade in the country, the ancient Indian literature is rich in descriptions of sleep physiology and the importance of sleep in life. In spite of rapid industrialization and the emergence of a modern 24/7 h society, knowledge about sleep and its disorders is lacking amongst the general public and doctors. A need is felt to raise the level of awareness of sleep to that of the level of nutrition and exercise. There is shortage of trained certified sleep specialists and technicians to meet the emerging demand. A need is felt to provide standardized sleep health care service. The role of professional sleep societies, industry, private enterprises and government agencies in promoting sleep medicine education in the country is emphasized. Vertical integration of education in sleep physiology and disorders, from school level to graduate and postgraduate medical education, is advocated. To create specialists in the discipline, horizontal integration with physiology, neurology, psychiatry and pulmonary medicine is a viable solution in this multidisciplinary subject. The government should recognize sleep as an important public health issue.

Keywords Sleep medicine · Sleep education · Sleep clinics

Introduction

When William C. Dement, the father of modern sleep medicine, did premedical at University of Washington in 1951 and MD in Physiology at the University of Chicago in 1955, sleep medicine was an unknown entity. Later Dement established the world's first Sleep Disorders Clinic at Stanford University in 1970. Today sleep science is an exciting and diversified field, as over the last 50 years or more, we have learnt a lot about the mystery of sleep, the nocturnal beauty. We have used all tools of modern molecular biology, electrophysiology and imaging techniques to address scientific questions in sleep science. In spite of the great leaps that we have made, even in the most affluent countries, the general public is still ignorant about the importance of sleep. In this context, it is very pertinent to quote from the famous book of Dement *'The Promise of Sleep'*: "AFTER ALL THE RESEARCH I've done on sleep problems over the past four decades, my most significant finding is that, ignorance is the worst sleep disorder of them all" [1]. People lack the most basic information about how to manage their sleep, leading to a huge amount of unnecessary sufferings. The fact is that both doctors and general public know almost nothing about vast store of advancement in modern sleep medicine and sleep physiology. Awareness about sleep and sleep disorders amongst doctors and the general public including our children and administrators is the need of the hour. We will not only live a healthy life but also prevent many unwanted deaths.

Rapid modernization is not only changing our life style, but also affecting our sleep. At this juncture it is important

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to educate the public and health professionals on the benefits of good sleep, consequences of sleep deprivation and sleep disorders. Professor Soichiro Miyazaki from Shiga University, Japan, has shouldered the important task of bringing out a special issue on 'Sleep medicine education in Asia' to take stock of the current situation and plan for our future for better sleep health and treatment strategies.

Sleep medicine in India: the glorious past

Vedas and Upanishads (probably dating back to 3500 BC) have classified the states of consciousness as (1) *Jagratavastha* (waking phase), (2) *Swapnavasta* (dream phase), (3) *Susuptavasta* (sleep phase) and (4) *Samadhi avastha* (conscious sleep phase). The first three stages have been scientifically described, but the modern science has yet to demonstrate electro-physiologically (or through some other technique) the fourth state of consciousness. During the Eighth Asian Sleep Research Society Congress in Kerala (India), many of us might have visited the most famous Lord Vishnu Temple, the Sree Ananda Padmanabhaswamy Temple in Thiruvananthapuram. Here the Lord Vishnu is enshrined in the *Ananthasayanam*, i.e. 'Yoga Nidra' or yogic sleep posture. At many places in India, one can find statues of Lord Buddha in many beautiful sleeping postures, emphasizing the importance of sleep in life. The solar time wheel carved out of red stone at the World Heritage site Konark on the east coast of India shows day and night human activities in pictorial forms. The importance of sleep and sleep hygiene has been amply advocated in ancient literature and paintings. Lord Krishna has explained the importance of proper sleep for *adhyana yogi* in Bhagavad Gita. He also mentions to Arjuna that excessive sleep or awaking is not good.

Sleep medicine in traditional school of Indian medicine

When we talk about patient care, what comes to our mind is modern medicine which has a short history, especially for sleep medicine. But the traditional school of Indian medicine, Ayurveda, practiced since ages in India, is still preferred by a large population for all their ailments. As most readers are not likely to be familiar with Ayurveda, the procedures adapted in this traditional Indian medicine are described here in some detail. Ayurveda considers *Nidra* (sleep) as one of the three supporting sub-pillars of good health. Information about ayurvedic medicine is available in the *Samhitas* (encyclopaedias), written in Sanskrit around 1000 BC, by the great scholars Charaka and Sushruta. Ayurveda advocates a holistic approach for

treating sleep disorders wherein the physical, mental, and spiritual attributes of a patient are emphasized, rather than focusing on the disease, as in conventional modern medicine [2]. The Ayurvedic *Samhitas* describe about 700 medicinal plants, 64 preparations from mineral sources, and 57 preparations based on animal sources [3, 4]. Active principles have been identified in about 38 herbs that have been reported to have sedative effects [5].

The physical procedures advocated for management of sleep disorders aim at physical and mental relaxation. These procedures include *Shirodhara* that involves pouring herbal medicine mixed with warm oil or water over the forehead, *Shirobasti*, in which medicine is retained above the head with the help of a head band, *Utsadana*, where they are applied all over the body with gentle friction by an expert hand. Body massages employed in treatment of sleep disorders in ayurveda include *Abhyanga* massage, where medicated oil is applied with pressure, and *Samvahanana*, where massage is given in soft stroking motions. Dietary advice always forms part of any ayurvedic treatment. Consuming milk, rice with curd, alcohol, meat soup are some of the most common suggestions given for getting good sleep. Ayurvedic physicians do recommend yogic exercises and meditation to improve the sleep quality. Ayurveda does recognize prayer as one form of treatment.

Ayurveda stresses on the importance of purification of the body (*panchakarma*) before other corrective measures are taken. So, some of the ayurvedic treatments for both *anidra* (sleeplessness) and *nidradhikya* (excessive sleep) are aimed at purification of the body. There is an emphasis on maximizing the body's innate ability to heal itself. Ayurvedic medical interventions involve individualized diagnosis, before herbal medications and other procedures. During clinical examination, the patient is evaluated on the basis of a unique concept of psycho-physiological body type, which forms the cardinal principle in the ayurvedic approach to health issues. According to this concept our physical and psychological constitution is determined by three *Dhatus* (basic factors) in the body, namely *Vata*, *Pitta* and *Kapha*. These terminologies cannot be appropriately translated into any other language, as they do not have any equivalent in modern physics, physiology and medicine [6, 7]. When these basic factors are aggravated or deranged, they bring about health problems like *nidradhikya* with increase in *Kapha*, and *anidra* with increase in *Vata* [3, 4].

The sleep medicine in India: the beginning

As in the case of western world, the history of sleep research in India is older than the history of modern sleep medicine in India. As it had happened in the west, these early sleep researchers paved the way for the development

of sleep medicine in India. In India sleep research started at the Department of Physiology, All India Institute of Medical Sciences (AIIMS), New Delhi, when Baldev Singh joined as emeritus professor in 1965. He along with T Desiraju and V Mohan Kumar laid the foundation for sleep research in India. They recorded the electrical activity of cortical and sub-cortical regions in unanaesthetised rats, cats and monkeys, and human volunteers. Their work attracted many eminent overseas sleep scientists like Mauro Mancia from Milan, who came to work on sleep physiology in monkeys in the department. Mancia was a disciple of Giuseppe Moruzzi, the co-discoverer of Ascending Reticular Activating System.

The Department of Physiology organized the first scientific meeting in India on sleep research and sleep medicine titled 'International Congress on Sleep-Wakefulness' under the leadership of V Mohan Kumar during September 1992. This academic sleep meeting made a big dent amongst the medical community in India and marked the beginning of modern sleep medicine in India. During this international conference, the Indian Society for Sleep Research (ISSR) was founded. Along with that, the founding committee for the Asian Sleep Research Society (ASRS) was also constituted. The formation of the ISSR gave a significant boost to sleep research and sleep medicine in India.

The health care system in India

It is necessary to mention about the health care system in the country to understand the issues related to sleep medicine in India. Health insurance is a recent phenomenon in the country and it can be availed of only by the privileged "haves", but it is a distant dream for the large number of "have-nots". In a country of more than 125 million people, the health care system is not only multiplex but also complex. Health care for patients starts from primary health care centres. From there the patient goes to district headquarter hospital, to medical college hospitals and super speciality hospitals, to seek medical attention for more complicated cases. The medical care is free or subsidized in government hospitals.

Sleep hygiene is the major issue for the poorer section of the society. Their sleeping environment, with insect bites and extreme weather conditions, makes their sleep repeatedly interrupted and extremely uncomfortable. Moreover, India has a large workforce which works on night shifts, due to power shortage during the day. Power is made available to the factories primarily at night. This also adds to the sleep problems of unprivileged section of the society. Unfortunately most of these unprivileged do not even realise that they have a sleep problem. In fact, most

sleep problems are reported only by the privileged few in the society.

Complaints of sleeping late and getting up late are recent phenomena, primarily among the affluent class. Most common sleep complaints amongst the patients are insomnia and fragmented sleep. Insomnia is treated by physicians at all level either symptomatically or scientifically. Besides insomnia, other mostly reported sleep disorders are hypersomnia, parasomnia and obstructive sleep apnoea. There is a general lack of awareness about narcolepsy, rapid eye movement (REM) sleep behavioural disorders and restless legs syndrome amongst primary health care providers. Common symptoms of sleeplessness and excessive sleep are treated by general practitioners. Traditionally sleep medicine was considered to come under the domain of neurology and psychiatry. More recently the pulmonologists have emerged in large numbers to treat sleep disordered breathing. Otorhinolaryngologists have also started surgical management of sleep disordered breathing. Though there is not much participation by dentists, their interest in the subject is also growing. Speciality sleep clinics are very few and confined to metros. Majority of sleep centres belong to pulmonologists. There are more than 300 sleep centres in the country, though the number of sleep specialists certified by American Board of Internal Medicine is about five or six.

The number of Registered Polysomnographic Technologists (RPSGT) is about 10. As sleep medicine is practiced by different kinds of specialists, the patients are left in a radial maze. There are no comprehensive centres for sleep disorders in India. A comprehensive centre for sleep disorders, envisaged to be established at Sree Chitra Tirunal Institute for Medical Sciences & Technology in Thiruvananthapuram, by V Mohan Kumar, to fulfil the gap in sleep medicine, research and education, is still a dream.

Sleep medicine and the pulmonary medicine community

It will be an unfinished story if we do not touch upon the role of pulmonologists in the growth of sleep medicine in India. Rapid expansion of sleep medicine in India occurred when it became evident that obstructive sleep apnoea syndrome is a major health issue, and non-invasive positive pressure ventilation is an accepted treatment mode. Though sleep was recorded and analysed on the basis of EEG, EMG and EOG on human subjects at AIIMS Delhi, from late 1960's, the first human polysomnography (PSG) laboratory was established in pulmonary medicine department in Safdarjung Hospital in New Delhi in 1995 by J C Suri. He also started a professional sleep society, named as Indian Sleep Disorder Association (ISDA), with fellow

pulmonologists. ISDA also brings out a journal quarterly titled 'Indian Journal of Sleep Medicine'. The clinical interest in sleep disorders grew rapidly in India, as the industry saw a big business opportunity in sleep medicine in this country with a population of more than 125 million. Rapid growth of sleep laboratories without qualified or trained sleep health professionals is a problem that needs to be tackled not only at the professional level, but also at political and administrative levels.

National Sleep Medicine Course

The National Sleep Medicine Course launched in India in 2006 (Fig. 1; Table 1) by the ISSR is the biggest annual teaching platform for sleep medicine in this country. The 'needs assessment analysis' during the Second Interim Congress of the World Sleep Federation (WSF) in New Delhi during September 2005 highlighted the urgent need for a sleep medicine education initiative in India. To fulfil

this aim, the National Sleep Medicine Course (NSMC) was organized in collaboration with the academic faculty from the USA, Japan and India. The ISSR sponsored NSMC is designed to serve as an educational platform for the practicing and in-training physicians, as well as other health care professionals. The NSMC recognizes the fact that during these transition times of scientific growth, not every doctor has received formal education in the basic science of sleep, nor the clinical practice of sleep medicine. NSMC wishes to carry out a mission that fulfils the void left in our mainstream educational system. The course is intended to provide education in basic science, technical aspects and clinical science of sleep medicine to the Indian medical fraternity.

The first NSMC was organized at AIIMS, New Delhi during October, 2006, on an experimental basis under the initiative of Deepak Shrivastava from UC Davis, California. The overwhelming response and clinical success of the NSMC 2006 have encouraged ISSR to continue the programme annually since 2006 on a regional basis under the



Fig. 1 Glimpses from National Sleep Medicine Courses

clinical leadership of H.N.Mallick, Deepak Shrivastava and the other dedicated US colleagues of Indian origin.

The course is designed to cover major topics in Sleep Medicine over two days of didactic sessions and workshops. The subjects included in the course are sleep physiology, neurology of sleep, neuro-pharmacology, insomnia, sleep disordered breathing, sleep and epilepsy, circadian rhythm disorders, cardiovascular complications of sleep apnoea, narcolepsy, sleep evaluation methods, restless legs syndrome, cognitive behavioural therapy, paediatric sleep disorders, parasomnias and sleep hygiene.

National Sleep Technology Course

The field of sleep medicine has grown significantly due to increased public awareness of sleep disorders. Sleep laboratories are coming up rapidly. There is an acute shortage of trained and certified sleep technicians. With this growth has come the need for accessible educational opportunities for PSG Technicians/Technologists who perform a crucial role in the diagnosis and treatment of sleep disorders. Apart from the skill needed for polysomnographic recording, the technicians should have some knowledge about sleep physiology, pathology and medicine to get certified by a competent professional body. The ISSR has been organizing National Sleep Technology Course (NSTC), every year since 2012. The aim of the course is to build a cadre of Polysomnographic Technicians (PSGT) who would become global leaders in sleep technology and provide high quality sleep technology services. It is also hoped to help sleep technicians to prepare for the RPSGT Examination. It will certainly help many talented young Indians to seek employment in the field of sleep medicine either in India or abroad.

Table 1 Shows the details of National Sleep Medicine Courses conducted in the past by Indian Society for Sleep Research

Year	Venue	No. of participants	No. of faculty
2006	New Delhi	45	10
2007	Bangalore	100	20
2008	Cuttack	60	20
2009	New Delhi	100	20
2010	Trivandrum	100	20
2011	Mumbai	100	20
2012	Bangalore	120	20
2013	Chennai	120	20
2014	Eighth Asian Sleep Research Congress, Kovalam, India		
2015	Guwahati	100	20

Board certified sleep specialists

It is necessary that each sleep medicine practitioner has comprehensive knowledge about sleep science and sleep medicine. The number of certified sleep specialists practicing in India, who are certified American Board of Internal Medicine, is limited to a single digit figure. Therefore, there is a need for certification in India, along the line of American Board of Sleep Medicine or American Board of Internal Medicine. The WSF came forward to conduct Transitional Board Certification Examination for Indian sleep specialists. Clete Kushida, the President of WSF, offered to assist in starting International Sleep Medicine Board Certification in five countries outside USA, including India. A ten member Indian Board of Sleep Medicine headed by a Chair was constituted in 2010 by the ISSR for this purpose. This committee is responsible for setting the qualifications to appear for the examination, and for ensuring that a given candidate is eligible to sit for the examination, determining the examination cutoff point, and for signing and distributing the certificates of completion. The WSF has conducted four examinations for Indian Specialists from 2012 to 2015, and it will conduct an examination in July every year on behalf of the Indian Board of Sleep Medicine. So far 15 candidates have passed this board certified examination and they are deeply engaged in the practice of sleep medicine. The ISDA has also conferred honorary fellowships on around 22 sleep medicine practitioners. ISDA also runs a 1-year fellowship programme in sleep medicine in some selected satellite sleep centres.

Certification Examination for Sleep Technicians

The Certified Sleep Technician (CST) Examination assesses the professional competence of technicians who perform routine adult PSG and basic CPAP titration for sleep apnoea. This examination is geared towards individuals who would like to acquire proficiency in this field. This examination will also help the candidates to take up RPSGT examination which is considered the gold standard in conferring sleep technologist credentials. A successful candidate will have basic knowledge of sleep apnoea and other sleep disorders, instrumentation, scoring rules for sleep stages, arousals, respiratory events, EEG waveform morphology, sleep physiology, respiratory physiology, cardiac physiology and CPAP titration. The first Sleep Technician Certification Examination was conducted by Indian Board of Sleep Medicine under ISSR in November 2015.

Sleep laboratories accreditation

Recently there is a rapid growth in Sleep Medicine in our country. However, the number of sleep physicians is not enough to cope up with this development. The sleep laboratories are outnumbering the sleep physicians. The availability of trained/certified sleep technicians is also limited. There are more than 300 sleep laboratories in the country. Many sleep laboratories are generating reports without any scoring by a sleep technologist or specialists. There is no uniformity or any prescribed standard followed in reporting. As a national professional society, the ISSR has volunteered to offer an accreditation programme for Sleep Medicine Centre and Sleep Testing Laboratories with the purpose of bringing quality health care in sleep medicine. Accreditation of sleep medicine centres and sleep laboratories is essential to ensure and improve patient care. The Neurology and Sleep Centre in New Delhi is the first sleep centre to be accredited by Indian Board of Sleep Medicine.

Sleep science and education across the spectrum

The school going children in most of the cities in India are sleep deprived because of early school timing. Home work, preparations for examination, entrance tests etc. not only encroach on sleep time but also reduce physical activities and social interactions. Prolonged tension associated with examinations is not only bad for general health, but also affects sleep. Moreover, stress-related neuro-hormonal changes delay sleep onset, and thus disrupt the circadian rhythm. Other teenage related problems also affect sleep. The use of mobile phones, iphones, ipads and the blue light emanating from these gadgets have changed the sleep pattern of children in India. We need to insert issues of

sleep habit in the elementary and high school curriculum. Our educational system has taken initiatives to raise the level of information of teachers and parents on nutrition and exercise. But we have to take steps to raise the level of information about sleep amongst the teachers and students. As a major step towards public awareness programme, ISSR had conducted a seminar titled "Importance of Sleep for School Children" for the school teachers in New Delhi in 2015 (Fig. 2).

Role of industry and private sector in continuing sleep medicine education

Philips Respironics conducts multiple activities to promote sleep medicine in India. They provide a tiered and structured training and certification programme for doctors and technicians. They also conduct patient and public awareness programme to create awareness on sleep and sleep disorders. The Nithra Institute of Sleep Sciences in Chennai offers fellowship in sleep medicine. To fill the lacunae between formal medical training in sleep medicine and practicing health care professionals, two of our colleagues, Manvir Bhatia and Preeti Devnani, are running ACE School of Sleep Medicine, as a regular regional training programme. The mission at ACE school, with targeted weekend courses, provides a comprehensive curriculum in clinical polysomnography and sleep medicine. The courses at ACE school are designed to provide the participants with a practical comprehensive review and understanding of the pathophysiology, clinical symptomatology and management of sleep disorders. They provide tailor-made modules of different durations and variable syllabus. The school has organized several courses at regular intervals at various regions of the country. ISDA has introduced some fellowship in sleep



Fig. 2 Sensitizing school teachers on the impact of blue light on sleep health by the ISSR Faculty in April 2015, New Delhi

medicine. There are some universities who claim to have started sleep courses with diploma but have not come up with positive steps.

The initiatives of the National Academy of Medical Sciences (India)

National Academy of Medical Sciences (NAMS) is a pivotal medical organization in India which utilizes academic excellence in India to meet medical and social goals. The role of NAMS in bringing back the national focus on sleep medicine education is laudable. Under the leadership of JS Bajaj, Chairman, Academic Council, NAMS has taken some major initiatives in sleep medicine education in India [8, 9]. This decision is based on the documented evidence that the prevalence of sleep disorders in India is comparable to the rest of the world. As a pilot programme, it conducted a symposium on sleep medicine for medical students at All India Institute of Medical Sciences, Jodhpur. A pre- and post-assessment of the symposium showed the need for quality education in sleep medicine. A survey conducted by NAMS and AIIMS Jodhpur showed that sleep medicine practically does not find a place in medical curriculum in India. On the basis of these evidences, the Academic Council of NAMS identified sleep medicine as a critical area where it needs to initiate urgent steps.

Academic Council of NAMS recognized that health policy planning and implementation are the major tasks ahead of it. It also recognized that in the current scenario in India, the enormous burden due to communicable and non-communicable diseases leaves little resources with the government for additional undertaking. At the same time, there is acute lack of human resources for sleep health care in the country. There is an obvious link between the lack of human resources for sleep health care, and deficiency in medical curriculum. Strategies planned by NAMS include enhancing of educational activities at various levels, e.g. community, general practitioners, medical students and allied health professionals.

Projected strategies of NAMS are aimed at generating facilities, and creating awareness for sleep health care, with the support from governmental and non-governmental organizations. It would initiate training programmes for existing human resources for diagnosis and management of sleep disorders and associated co-morbidities. It would then use the generated physical and technological facilities to implement intervention strategies, and integrate sleep health care with existing primary health care system. It would provide upgraded facilities at the community health centres and sub-district (Taluka) hospitals. It would also initiate and develop tertiary care facilities at district hospitals and medical colleges.

Long-term objectives of sleep health care programme of NAMS envisage innovation of cost effective technologies and ensure a system of quality control. It would collate and disseminate information on sleep behaviour and sleep disorders especially in children, women and aged. There is a need for coordinating nationwide education and training programmes for the public, patients, as well as primary health care providers including community health workers. There is also a need for assessing the current and future needs of skilled human resources, drugs and devices. All these activities should promote self reliance in sleep health care in the country.

In summary, sleep health care should become a part of the medical curriculum and integrated national health services. Community-based primary health care schemes should be linked to specialized levels to ensure the quality of care. Sleep health care should take into consideration the requirements of the patient and the availability of resources. A group of experts should review alternative strategies, including practice of Yoga, and make specific proposals for planning of health systems. Planning and research on sleep health care must take into account the wide variations in social and economic conditions in the country.

Sleep curriculum in medical colleges: future directions

There are more than 409 medical colleges in India as per the list published by the Medical Council of India in 2014. This number does not include dental colleges. As mentioned earlier, a survey conducted by NAMS in 100 participant colleges showed that there is no structured sleep medicine module in any college except one. Even in this college the number of classes taken on sleep physiology and sleep disorders amounted to 2–3 h in 4 1/2 years curriculum. Thus, there is a total lack of topics on sleep medicine and chronobiology in graduate medical curriculum. We propose that there should be at least three lectures in physiology including circadian rhythm and 7–8 lectures in sleep medicine dealing with classification of sleep disorders, recognition and diagnosis strategy for narcolepsy, restless legs syndrome, insomnia, sleep apnoea, REM sleep behavioural disorders and impact of sleep deprivation. Standardized patient assessment and sleep diary should be a part of routine assessment. Sleep medicine can be best taught by vertical integration starting with basic knowledge to sleep disorders. This is the best strategy if we have to develop sleep medicine in the country. In other words there should be education at many levels in the field of sleep medicine.

Case conferences, grand rounds should be seen as opportunities to present the concept of sleep medicine to

subspecialties such as pulmonary and critical care medicine in which sleep disorders are part of the domain of practice. Residency in sleep medicine is a viable option in integrating sleep medicine. During 3 years of residency there will be ample opportunities to rotate in departments of physiology, neurology, psychiatry and pulmonary medicine which can be termed as horizontal integration. A change in mindset at leadership level is needed to develop the discipline of integrated sleep medicine.

National agenda for sleep medicine

Project 'Sleep' in the USA was a programme announced in 1979 by the surgeon generals' office to focus the government programme on sleep research and sleep disorders [10]. Before that sleep education in US was a topic found in popular press and in psychiatric literature. The scenario in India in 2015 is no different from that of the USA in 1979. Although the USA has woken up to the call, the Indian government is still in delta sleep. A transition from deep sleep to paradoxical sleep may provide a chance for it to dream about a good sleep health care system in the country. Drowsy driving is yet to be recognized as a public health issue. Funding agencies have no specific agenda for sleep research. The plight of school children getting up early to catch the school bus is unnoticed. A number of physicians and technicians are interested in undergoing training in polysomnography. But not enough opportunities are available. The BA psychology curriculum has more chapters on sleep physiology, dream and circadian biology than in 1st year graduate medicine course. Although psychology text books address physiology of sleep and dream

to a good extent, these books generally do not have information about sleep disorders.

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ISSR ACTIVITIES

- Σ National Conferences
- Σ International Conferences
- Σ National Sleep Medicine Course
- Σ National Sleep Technology Course
- Σ International Sleep Specialist Certification
- Σ National Sleep Technician Certification
- Σ Sleep Laboratory Accreditation
- Σ Public Awareness Programmes

NATIONAL SLEEP MEDICINE COURSE

(An Annual Academic Venture by Teaching Faculty from USA, Japan, UK and India)

The National Sleep Medicine Course is the premier academic event organized by ISSR. The academic programme was conceived by Dr. Deepak Shrivastava from USA in 2005 during the 2nd Interim Congress of World Sleep Federation at New Delhi. The course is intended to provide education in basic science, technical aspects and clinical science of sleep medicine to the Indian audience. The first NSMC was organized at AIIMS, New Delhi during October 14-15, 2006 on an experimental basis under the initiative of Dr. Deepak Shrivastava from UC Davis, California. The overwhelming response and clinical success of the NSMC 2006 had encouraged us to continue the programme annually since 2006 on a regional basis under the clinical leadership of Dr. H.N. Mallick, Dr. Shrivastava and dedicated US colleagues of Indian origin along with academic faculty from Japan and India.

Target audience: General practitioners, specialists, healthcare professionals residents and students. Objectives: The course was designed to cover major topics in Sleep Medicine over two days of didactic sessions and workshops

Objectives: The course was designed to cover major topics in Sleep Medicine over two days of didactic sessions and workshops.

NATIONAL SLEEP TECHNOLOGY COURSE

(A career development programme for Sleep Technicians)

The field of sleep medicine has grown significantly due to increased public awareness of sleep disorders. With this growth has come the need for accessible educational opportunities for PSG Technicians/Technologists who perform a crucial role in the diagnosis and treatment of sleep disorders. Apart from the skill needed for polysomnographic recording, the technicians should have some knowledge about sleep physiology, pathology and medicine to get certified by a competent professional body. The ISSR has been organizing National Sleep Technology Course (NSTC), every year since 2012. The aim of the course is to build a cadre of polysomnographic Technicians (PSGT) who would become global leaders in sleep technology and provide high quality sleep technology services. It will also help sleep technicians to prepare for the RPSGT Examination.

It will certainly help many talented young Indians to seek employment in the field of sleep medicine either in India or abroad.

Target Audience: Sleep technicians, EEG technicians, health professionals and individuals interested in a career in sleep medicine.

THE WORLD SLEEP FEDERATION TRANSITIONAL BOARD CERTIFICATION EXAMINATION FOR INDIAN SLEEP SPECIALISTS

Sleep medicine is practiced by physicians and surgeons of various disciplines utilizing their expertise. It is thus necessary that each sleep medicine practitioner has comprehensive knowledge about sleep science and sleep medicine. Dr. Clete Kushida, the President, of World Sleep Federation (WSF) offered to assist in starting International Sleep Medicine Board Certification in five countries outside USA, including India. A ten member Indian Board of Sleep Medicine headed by a Chair was constituted in 2010 by the Indian Society for Sleep Research, for this purpose. This committee is responsible for setting the qualifications to appear for the examination, ensuring that a given candidate is eligible to sit for the examination, determining the examination cut-off point, and for signing and distributing the certificates of completion. The WSF had conducted examinations for Indian Specialists in 2012, 2013, 2014, 2015, 2016, 2017 and will conduct every year in June/July on behalf of the Indian Board of Sleep Medicine. Certification: The Certificate will be issued by the Indian Board of Sleep Medicine for the candidates passing "The World Sleep Federation Transitional Board Certification Examination for Indian Sleep Specialists" conducted by WSF.

Certification: The Certificate will be issued by the Indian Board of Sleep Medicine for the candidates passing "The World Sleep Federation Transitional Board Certification Examination for Indian Sleep Specialists" conducted by WSF. The certificate will be valid for 10 years from the date of issue. Details about the examination are available at www.issr.in. The names of the certified specialists are displayed at ISSR and World Sleep Society websites.

CERTIFICATION EXAMINATION FOR SLEEP TECHNICIANS

The Certified Sleep Technician (CST) Examination assesses the professional competence of technicians who perform routine adult PSG and basic CPAP titration for sleep apnea. The examination is geared towards individuals who would like to acquire proficiency in the field. This examination will also help the candidate to take up RPSGT examination which is considered the gold standard in sleep technologist credentialing. A successful candidate will have basic knowledge of sleep apnea and other sleep disorders, instrumentation, scoring rules for sleep stages, arousals, respiratory events, EEG waveform morphology, sleep physiology, respiratory physiology, cardiac physiology and CPAP titration.

The Sleep Technician Certification Examination is conducted in the month of June. For updates please visit www.issr.in

Evolution and Impact of National Sleep Medicine Course

Deepak Shrivastava, MD



Thirteen years ago, on a cold and foggy winter morning in Stockton, California, I sat in my office with furnace blowing warm air in the room. Little did I know that as I would browse through my emails, an invitation for a seminar to participate in the second interim Congress of the World Federation of Sleep Research and Sleep Medicine Societies, WFSRSMS 2005 at India Habitat Center would change the course of time forever! The sender Dr. H N Mallick was then unknown to me but the message was profound and compelling. I immediately responded in the affirmative and requested for more details. Rest of the story is history....

A few months later in September 2005, a group of four, three Caucasians, and one Indian arrived at beautiful India Habitat Center. Dr. V Mohan Kumar, a tall sophisticated man, a total reflection of kindness and wisdom, happened to be at the registration area. We introduced ourselves. Within minutes, another immaculately dressed gentleman approached and instantly made an everlasting impression on us. His disarming smile reflected confidence. He introduced himself as Dr. H.N. Mallick and immediately complimented us on the promptness in our electronic communication and asked of our welfare. One would wonder how he handled nuances of the first day of a formidable international event and still remembered small details of hospitality. His warm reception relieved us of jet lag, fatigue, and sleep deprivation. Dr. Robert Monie and Ms. Susan Edwards along with the author formed the seminar team. Dr. V. K. Vijayan, then director of Patel Chest Institute complemented the team as the fourth speaker. "The Science of What Doctors Don't Ask and Patients Don't Tell" resonated well with the astute audience! In a subsequent meeting later in Dr. Mohan Kumar's office in All India Institute of Medical Sciences (AIIMS), the idea of National Sleep Medicine Course (NSMC) germinated. He patronized our ideas as discussions began to crystallize in to actions. Dr. Mallick did not think twice in accepting the responsibility to take the leadership role. Later that night, I looked down at Delhi as my flight took off over millions of buildings and houses and bright lights began to dim, I had a sense of comfort that the determination of the two stalwarts I met was unwavering! Years later, today when I think about it, much has changed in the world but not their determination to carry the mission forward.



Here in Chattanooga, Tennessee USA, Dr. Anuj Chandra unexpectedly picked up the phone on the very first ring. He asked me how my India trip was. After a brief conversation, he was ready to join. He remained on my side since then. He is responsible for press releases, news media feeds, and interviews to promote the cause of sleep medicine in India.

NSMC (2006) began with a small class, small group of US faculty and formidable support of Drs. Mallick and Mohan Kumar. It was time to scale, said Dr. Mallick. The response and feedback from the attendees was so encouraging!



Dr. Bindu Kutty from NIMHANS, Bangalore organized the NSMC (2007). The predictions were correct. There was stand-only room in the auditorium. We met Dr. T. R. Raju during this course.

NSMC (2007) began to fill the void. We reviewed basics of sleep physiology, neuro-anatomy, neuro-pharmacology, and everything that a medical student should learn in the medical college. We knew that goal is far away and we must do our part to prepare highly competent sleep specialists.



Dr. Arpita Priyadarshini, from VSS Medical College, Burla, organized the third NSMC in Cuttack. By now, people had heard about the opportunity and responded to the call. Indian Society of Sleep Research decided to bring knowledge to the peoples' doorsteps.

NSMC (2008) was a testimony that NSMC initiative was moving in the right direction. Dr. Kimberly Hardin (U C Davis) joined the NSMC faculty. We began to see returning audience! Every course set new standards for the next organizer to meet. While financing remained a challenge, organizers put up a praiseworthy event.



Dr. Manvir Bhatia took responsibility for the 4th NSMC and organized the course in Delhi under the auspices of Sir Ganga Ram Hospital. NSMC got attention of well-known physicians. Dr. G. S Chhina, Dr. J. C. Suri, and Dr. Vikram Sarbhai are few notables worthy of mention.

NSMC (2009) saw initiation of Drs. Kumar Budur, Anoop Karipot, and Manpreet Singh (all USA). Dr. Kumar Budur later supported Budur Krishna Murthy Travel and Young Investigator awards in 2014.



Dr. Kamallesh K. Gulia became the organizing secretary of fifth NSMC at Sree Chitra Tirunal Institute for Medical Sciences & Technology in Thiruvananthapuram, Kerala, India. The course again received recognition and funding by Department of Science & Technology, Science & Engineering Research Council Division, Government of India

NSMC (2010) featured renowned faculty, Drs. Anoop Karippot, Anuj Chandra, Anuja Sharma, Chirag Pandya, Jagjeet Kalra, Kimberly Hardin, Kumaraswamy Budur, Rama Maganti, Vijay Ramesh, all from USA and Masaki Nishida and Sunao Uchida both from Japan. The faculty powerhouse by this time became competitive.



Dr. Preeti Devnani, who had just recently moved to India from USA, decided to conduct the 6th NSMC in Mumbai. In addition to regular faculty, NSMC 2011 highlighted the prestigious presence of Drs. David White and Emanuel Minot. This course was unique that Dr. Devnani started a new trend of faculty evaluation by the course attendees.

NSMC (2011) was graced by distinguished presence of Dr. N H Wadia. This course took the educational goals to different heights



Dr. Bindu Kutty volunteered to organize NSMC for the second time. Her keen desire to present a highest class course prevailed because of her untiring efforts and meticulous attention to the details. Her simplicity uniquely complements her unmatched intelligence.

NSMC (2012) displayed many advances. Dr. Rita Banerjee from Science and Technology ministry continued support of the NSMC endeavor and granted DST funding. Her yearly presence during the course is a testimony of endorsement and understanding of NSMC mission. A Sleep Technician Workshop was organized during the course. The aim of the workshop was to build a cadre of Polysomnographic Technologists who would become global leaders in sleep technology, and provide highest quality sleep technology services. The American Academy of Sleep Medicine (AASM) offered to assist in starting the International Sleep Medicine Board Certification for sleep medicine practitioners in India. The ISSR constituted a ten-member Indian Board of Sleep Medicine. Dr. Soichiro Miyazaki and Michael Vitiello (Japan) joined the faculty. As expected, NSMC 2012 was a great success in terms of both attendees and the faculty and all the educational conversation in between.



Dr. Suresh Kumar (Sri Balaji Medical College) worked diligently to bring NSMC 2013 to a reality. He and his team worked since the conclusion of the NSMC 2012 in Bangalore. He showed a very ambitious and forward-looking program. A large volume of enthusiasm and support was extended by the industry.

NSMC (2013) received tremendous industrial support, responsible for the sustainable development of this educational endeavor. We again exceeded our expectations as many international attendees from Ireland, Sri Lanka, United Arab Emirates, and Malaysia made visible presence to complement the large Indian group of attendees suggesting continued growth and reputation of NSMC. Dr. Yuichi Inoue (Japan) and Dr. T. D. Singh, (Singapore) graced the occasion with their presence.

The ISSR board of directors resolved that NSMC 2014 would be skipped in the interest of prestigious international Asian Sleep Research Society (ASRS) annual meeting in Kovalam in September 2014. The NSMC faculty and attendees participated to fulfill their educational goals a few months earlier in 2014 in the ASRS meeting.



Dr. Kripesh Ranjan Sarmah wrote another chapter in the history of Sleep medicine in India. He worked diligently for almost one year to make a complete bouquet of National Sleep Medicine Course 2015. Dr. Kripesh and his team earned our highest regards and gratefulness for a seamless production and meticulous attention to detail.

NSMC (2015) kept him so engaged that he missed a couple of family wedding ceremonies that occurred during the course. He stayed on the premises until the last guest had departed. His dedication is not only exemplary; it goes on to show that future of Sleep medicine in India is in safe

hands! Dr. Ron Dean flew across the world from Ohio (USA) to speak on “Why oral appliances will prevail in the test of time?” Dr. Dean turned out to be an esteemed scientist showing his engagement, knowledge, and experience. Dr. Dean's ability to communicate with the audience was obvious. Another fine addition to NSMC 2015 faculty was Dr. Himender Makker from United Kingdom. He blended well with his pleasant personality, kind demeanor, and outstanding performance.



For Dr. Ravi Gupta NSMC 2016 lasted for more than one year. Like a seasoned artisan, he designed the course, invited speakers, landscaped the venue, detailed minute-by-minute program, and remained calmly visible despite unforeseen circumstances. Most importantly, he introduced the concept of specialty focus additional day- Pediatric Sleep Medicine.

(NSMC 2016) Dr. H N Mallick sent a text message to me 'Every NSMC has its own charm'. I could not agree more. On the sunny afternoon of December 4, 2016 as we moved forward towards the NSMC 2016 closing ceremony, one could feel that no one wanted to leave. Submerged in the ocean of knowledge, audience engagement was unprecedented. Dr. V. Mohan Kumar announced the birth of 'Sleep and Vigilance', a new international journal- a testimony of Indian Society for Sleep Research (ISSR) commitment to education and promotion of the science of sleep medicine around the world. Dr. H N Mallick continues to guide ISSR in its mission of public awareness of sleep and sleep disorders. He is the driver of the change in the world of sleep. Extremely important initiatives like accreditation of sleep labs, board certification in sleep medicine for both physicians and technologists and public safety are his gifts to the country.

Dr. Tripat Dev Singh, the backbone of the ISSR academic endeavors with his round the year publication activity enlightened the audience on many fronts. During NSMC 2016, we had the honor of having Dr. Lothika Chandra, a geriatric sleep specialist, Dr. Makkar (UK), Dr. Saraswathi Muppuna, an obesity specialist (USA) and Dr. Ramadevi Gourineni (USA). Dr. Karuna Dutta, MD, PhD has added so much value to the NSMC. She initiated an objective evaluation process of the course, focused group discussions for needs assessment, development of accurate educational curriculum and efficacy of NSMC. She is co-organizer of the ISSR 25th anniversary NSMC with Dr. Bindu Kutty.

NSMC has received unconditional support from both the faculty and attendees. Dr. V. K. Vijayan, Dr. Garima Shukla, Dr. Manjari Tripathi, Dr. Lavanya Gali, and Dr. Krishnan have traveled long distances to participate actively. Dr. J. C. Suri and Dr. Vikram Sarbhai despite their busy schedules, not only deliver high impact lectures but stay in the conference hall continuously throughout the sessions. The seamless transitions between the basic sciences course (NSMC) and innovative clinical meeting (SLEEPCON) every year is a treat that provides full range education to the health care providers. The critical mass of sleep trained and board certified doctors is building but there is room for lot more growth and lot more improvement in short period.

The growing NSMC family is evidently showing momentum in spreading the wealth of knowledge and is deeply engaged in many ways including the newly formed 'Budding Sleep Physicians' group. This only became possible because of the formidable work done by the NSMC regional organizers, enthusiasm of the faculty and insatiable quest of attendees. A production of this magnitude is only possible with the assistance of hundreds of people working in the background. They are equally important contributors to the cause of sleep medicine.

This summer in Boston, Massachusetts USA, Dr. Sharon Keenan, founder of School of Sleep Medicine (1989), and a dear friend took the podium to speak at the annual meeting of AAPIO-S. She focused on value of education in the diagnosis and management of sleep disorders and suggested that we do not even understand the magnitude and impact of sleep disorders on human life. “We have lots of work to do and the work has just begun”! Tears rolled down her cheeks as we stood in a standing ovation!



WORLD FEDERATION OF SLEEP RESEARCH AND SLEEP MEDICINE SOCIETIES

SECOND INTERIM CONGRESS

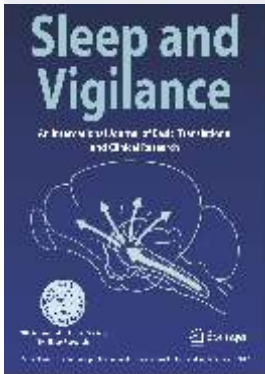
September 22-26, 2005
New Delhi, India

The "Second Interim Congress of the World Federation of Sleep Research and Sleep Medicine Societies (WFSRSMS)" was held in New Delhi from 22 to 26 September, 2005 at India Habitat Centre. The WFSRSMS, with Professor David F. Dinges at the helm of affairs, took pains to ensure cooperation from its adhering societies. The American Academy of Sleep Medicine, Asian Sleep Research Society, Australasian Sleep Association, Canadian Sleep Society, European Sleep Research Society, Federation of Latin American Sleep Societies and Sleep Research Society (United States) are the members of the WFSRSMS. Around 350 delegates from 27 countries attended the meeting. The Congress held 37 symposia and 3 focus groups, in addition to three poster sessions, on different days. The Scientific Programme Committee chaired by Professor Ricardo A. Velluti ensured a high standard of the scientific programme. There was an organized trip to Taj Mahal, at Agra during the Congress to promote friendliness and net working amongst fellow delegates.



2005

Dear Colleagues,



It is with immense pleasure and enthusiasm that we share information about the official journal of our society - Sleep and Vigilance. For almost four years, the leadership of Indian Society for Sleep Research (ISSR) was thinking about having 'our own' journal. ISSR took its first step towards having its own publication three years ago when the newsletter "Sleepwatching India" was started. Dr. Tripat Deep Singh took the initiative and single handedly started the newsletter and continued to publish it at regular intervals. However, due to competing obligations, the goal of starting an independent journal

remained an idea only.

The enthusiastic response to our newsletter "Sleepwatching India" raised the society's profile, and prompted serious consideration among its leadership that the time was right to develop and publish a journal, one that would call attention to the emergence of sleep medicine and its critical importance in promoting human health and wellbeing. During the last year and a half we have been working diligently to make this aspiration a reality.

As we look back on our efforts we are reminded of the proverb which reads, 'Beyond mountains there are mountains', a wise observation which elegantly summarizes the struggle and barriers that we have had to go through to bring our journal to the world. In this endeavor ISSR had a number of issues to resolve, e.g., the name of the journal, the journal's scope in terms of content and geographical representation, the choice of publisher, selection of the editors and recruitment of eminent scientists to join the editorial board. After much deliberation with the leadership and executive body members, it was decided that the proposed journal's name must not be limited by any geographical boundary; hence, editorial board members were drawn internationally. Another consideration was that as a professional society, we wanted to provide to our members the most comprehensive perspective on this new and growing specialty within medicine. To that end we were not only concerned with calling attention to the importance of restful sleep to overall health, but also to the role of sleep in promoting sustained and productive alertness. We also faced the mammoth challenge of finding a reputed publisher for a new journal. After an intense search we were gratified to reach an agreement with Springer Nature, one of the most respected names in scientific publishing, and we are now part of its family of high quality journals. In view of our goal to include both the processes of sleep and daytime alertness within the journal's scientific purview, the journal was named, "Sleep and Vigilance". We are therefore pleased to announce that Sleep and Vigilance is a Springer-owned journal.

In collaboration and editorial support from the ISSR, the journal publishes exemplary peer-reviewed manuscripts dealing with neurobiological investigations of normal and altered states of vigilance. Our goal is to develop a

platform for representing bench to bedside research, one that will be relevant for, and will foster communication between, both basic scientists and clinical researchers. The makeup of the journal's editorial board and its table of contents are evidence of the journal's solid foundation and that it is well positioned to reach the broad reading audience as stated in its goals. The journal's success in meeting the challenges involved in building this foundation was not achieved easily, and was only made possible through a dedicated team effort. In this context we would like to publicly acknowledge that there were many individuals whose efforts and dedication were instrumental in making our goals into reality.

The purpose of this broad-spectrum journal is to provide a unique platform for collecting and disseminating state-of-the art scientific research in the increasingly overlapping fields of basic, translational and clinical sleep medicine. Sleep and Vigilance will focus on clinically-relevant basic biomedical research and additional issues. These issues relate to the provision of optimal health care by means of diagnosis, prevention, treatment, and management of diseases. The journal will also encourage communication dealing with programmatic objectives such as public health advocacy, stakeholder management, policy issues and program development. The articles that are published will move discoveries from the bench to the bedside and from the bedside to the community at large.

The ISSR is well aware of the undeveloped state of the field of Sleep Medicine in India. As a society, we recognize that Sleep Medicine is still in its infancy not only in our country, but also in other Asian countries. We also recognize the constraints in which sleep medicine scientists in these areas are working. In view of these considerations the journal will encourage the submission of manuscripts from international sources, but especially from researchers in India and other Asian countries. The goal of this policy is to maintain the journal's global perspective and to enhance collaboration. We particularly encourage the ISSR community to submit their work to "our own" journal. However, the editorial board will pursue this policy while respecting the need to maintain the scientific robustness of the manuscripts. The editorial policy of our journal has been guided by the need for high standards of scientific quality, integrity, professional and ethical responsibility.

In the best interests of the medical and scientific community, especially to the members of ISSR, Sleep and Vigilance will be freely accessible online, with unimpeded access to the full text of articles. All readers will be able to download and/or print any article at no cost for the initial two years. Sleep and Vigilance will be initially published twice a year for the first year with contributions from scientists and researchers across the globe. The number of issues will be increased as we move to the following years.

It is an honor to serve as the founding editors-in-chief of Sleep and Vigilance. We look forward to your ideas to help improve the journal. We would be failing in our duty if we didn't thank the ISSR leadership for their support and guidance. We also thank all the editorial board members who graciously agreed to be on board with us to pull this off the ground. We look forward your continuing support.

Thank you,



Ravi Gupta



S.R. Pandi-Perumal

ISSR Newsletter and Literature Updates

ISSR Newsletter

The idea of ISSR newsletter was conceived during initial discussion with Dr. H.N. Mallick in Dec 2014 while sitting in his room in the Department of Physiology AIIMS New Delhi. It was felt that there is no publication in India which highlights the different sleep activities happening in India. There is none that provides educational material, and also a platform for sleep experts including Doctors and Sleep Technologists in India to share their knowledge and experiences with their peers. To achieve these goals, it was decided that ISSR would publish a newsletter two times in a year. "SleepWatching India" was chosen as the title of the newsletter. The 1st issue of the newsletter was published in May 2015.



The newsletter has several sections. In the section "ISSR Activities", a timeline is presented of all the ISSR activities in the past 3 yrs and the current year.

In the section "National Sleep Medicine Course" and "National Sleep Technology Course", the organizing chairperson shares the write up on NSMC and NSTC activities and workshops. The photographs of the event shared by the organizers are a visual treat for the readers.

The section "Events in the Region and World" gives a calendar of all the sleep events in India and rest of the world in next six months along with the website link for each event.

In the section "Sleep labs in India", the details of the various sleep labs in India are covered which includes the services and training opportunities that are offered, and contact details.

In the section "Sleep labs in ASEAN Region", the details of various sleep labs in the ASEAN region are shared with information on services offered, training opportunities and contact details.

In the section "Personal Opinions of Sleepwatcher", one sleep technologist shares his/her experience regarding the field of sleep technology. I coined the term "Sleepwatcher" for Sleep technologist since they spend majority of their time watching patients sleep. In the section "PSG Secrets", sleep technologists share the essential knowledge on topics related to polysomnography.

Dr. Deepak Srivastava volunteered to publish questions regularly on Board exams. In the section "Board Review Corner- Sleep Medicine" and "Board Review Corner Sleep Technology", 10 questions each on Sleep Medicine and Sleep Technology are published respectively with detailed referenced answers.

In the section "Sleep Secrets", sleep specialists discusses essential points on topics in Sleep Medicine.

Dr. Michel A. Cramer Bornemann, Lead Investigator- Sleep Forensics Associates from Minnesota will share his knowledge on various legal aspects involving Sleep disorders and crime in the section "Law and Sleep Science".

In the section "Sleep and Digital app's", apps relevant to the field of Sleep or Sleep Medicine will be discussed.

The section “Sleep Events in India” tries to cover the details of events, related to sleep science, occurring in India.

The section “Sleep News in Media”, covers what is being reported by media regarding sleep.

All the past issues of newsletters can be accessed at the website www.issr.in under the tab Newsletter.

In May 2017 ISSR has successfully completed two years of publishing this newsletter and it has been well received so far. I am personally thankful to all the contributors to different sections of the newsletter which made it possible for me to carry out this initiative on behalf of ISSR.

ISSR Literature Updates



The field of Sleep Medicine is relatively very young, and everyday something new is being published. Sometimes it becomes very difficult to keep ourselves updated about new developments in the field. ISSR publishes literature updates in the field of Sleep Medicine twice a year, covering studies that were published from January-June and July-December, each year. First issue was published in Jan 2015. Initially we chose the title “SleepUpdate India” but after three editions the title was changed to “Sleep Medicine Update” based on readers’ feedback. At present this update is circulated through e-mail to the following:

1. Members of ISSR
2. Members of Singapore Sleep Society
3. Sales and Marketing team of Philips Respironics ASEAN Region, Korea and Pakistan.

We have decided to publish literature updates on the basis of classification of sleep disorders, as listed in International Classification of Sleep Disorders (ICSD) 3rd edn. In this task of gigantic proportions Dr. Ravi Gupta has agreed to help me to summarize the studies published on Insomnia, Hypersomnia of Central Origin and Movement Disorders. It was decided that I will summarize the studies on Sleep Disordered Breathing, Parasomnias and Circadian Rhythm Disorders. Dr. Michel A. Cramer Bornemann, Lead Investigator, Sleep Forensics Associates from Minnesota has agreed to contribute literature updates on “Sleep Related Violence” in future issues starting from July 2017 issue.

The past issues can be accessed at www.issr.in under literature update tab. ISSR and I look forward to the valuable feedback and contributions from the readers to improve/enhance these initiatives in future.

Sleep Well. Sleep on Time.

Dr. Tripat Deep Singh.

MBBS, MD(Physiology), RPSGT, RST

International Sleep Specialist (World Sleep Federation Program)

Editor: ISSR Newsletter and Literature Updates.

ISSR -WSF Certified Sleep Physicians in India

Under the initiative of Dr. Clete Kushida, President, World Sleep Federation, the certification of Indian sleep doctors started in 2011. For regulation and certification, the Indian Society for Sleep Research (ISSR) constituted a ten member Indian Board of Sleep Medicine (IBSM) headed by a Chair. WSF has been conducting the examination for Indian Sleep Medicine doctors since 2012. Below is the list of doctors who have qualified in the WSF international Sleep Specialist certification examination.

2012

Dr. Tripat Deep Singh
Dr. Vikas Mittal
Dr. Teresa MPC Ferreira
Lt Col Dr. Karuna Datta
Dr. Nitika Dang

2013

Dr. Pragati Agarwal
Dr. Pramod Krishnan
Dr. Haseeb Hasan
Dr. Kripesh Sarmah
Dr. Ravi Gupta

2014

Dr. Apar Jindal
Dr. Sujit Jagtap
Dr. Ghulam Hussain

2015

Dr. Sourav Das
Dr. Deepak Menon
Dr. Rajanish Sharma
Dr. Vivekananda Lahan
Dr. Hardeep Kumar

2016

Dr. Alkesh Kumar Khurana
Dr. Abdul Muneim
Dr. Sapna Erat Sreedharan
Dr. Kandraju Satish

2017

Dr. Suresh Babu P
Dr. Ajay Asranna
Dr. Manu Chopra

ISSR Certified Sleep Technicians

The Indian Board of Sleep Medicine has been conducting certification examination for sleep technicians in India since 2014

John Mohd. Nengroo
Anubha Sharma
Utsah Mahamallick
Basharat Ahmad
Rahul Rawat
Adil Ahmad
Bharat Singh
Utsav Bansal

Yuvraj Kunwar
Awnish Kunwar Singh
Jaivir Kumar
Neeraj S. Chawan
Anees C.A.
Santosh J. Jaguste
Chand B. Dudekula
Divya Coni Kumar
Thaheer Shaik

ISSR Accredited Sleep Centres in India

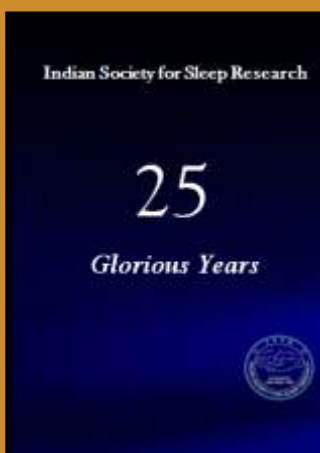
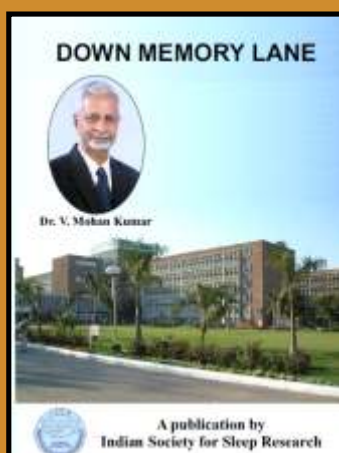
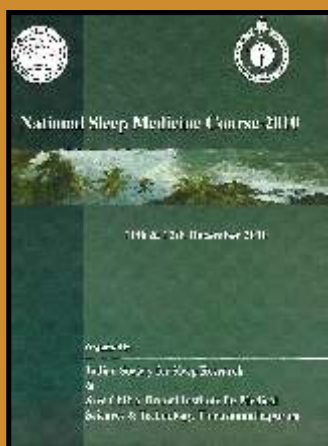
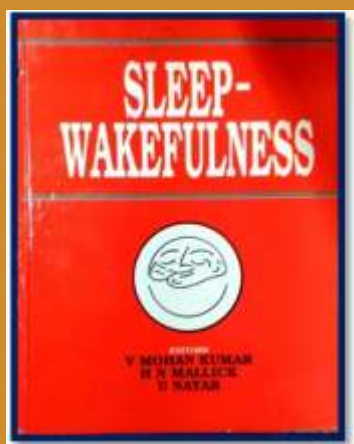
Neurology and Sleep Centre, Hauz Khas, New Delhi
Sleep Lab, Himalayan Hospital, Dehradun



Top to Bottom; Left to Right: Dr. V Mohan Kumar, Dr. Hrudananda Mallick, Dr. Bindu M Kutty, Dr. Kamalesh K Gulia , Dr. Manvir Bhatia, Dr. Manjari Tripathi, Dr. Preeti Devnani, Dr. Garima Shukla, Dr. Ravi Gupta, Lt. Col. (Dr.) Karuna Datta, Dr. Vikram Sarbhai, Dr. Suresh Kumar, Dr. V K Vijayan, Dr. J C Suri, Dr. Ramadevi Gourineni, Dr. Kripesh Ranjan Sharma.



Top to Bottom; Left to Right: Dr. Deepak Shrivastava, Dr. Anuj Chandra, Dr. Sunao Uchida, Dr. Kumar Budur, Dr. Anuja Sharma, Dr. Rama Maganti , Dr. Kimberly Hardin, Dr. Tripat Deep Singh.



Budur Krishna Murthy Award

Budur Krishna Murthy Travel Award is offered to 5-10 young life members of ISSR preferably below 35 years to attend ISSR organized scientific activities within India. Budur Krishna Murthy Young Investigator Award (Rs 10, 000 cash prize) is given to the best poster presented in the ISSR organized conferences.

Dr Kumar Budur is a distinguished regular international faculty in the National Sleep Medicine Course organized by ISSR every year since 2006. His beloved father Late Shri Krishna Murthy Budur valued education, science and research very much. To fulfil this long cherished desire of his father, Dr Kumar has donated a generous amount to ISSR. The ISSR has instituted above two awards in the name of Late Budur Krishna Murthy



Budur Krishna Murthy (19.7.1942 - 23.11.2011) was born as an only child to his parents in the district of Bellary in Karnataka. He was a self made man and owned small business. Although not fortunate to have higher education for himself, he highly valued education, science and research. A simple and a humble man with a mild sense of humor, he encouraged everyone to pursue their dreams. He was a source of hope, optimism and strength and touched so many lives in so many positive ways.



National Sleep Medicine Course Corpus Fund

Dr Deepak Shrivastava is well known to the Indian sleep community. He is the founder and clinical course coordinator of the National Sleep Medicine Course conducted by the Indian Society for Sleep Research since 2006. This course is conducted every year to advance the knowledge of sleep medicine amongst Indian physicians. Dr Deepak and his colleagues come every year from USA to run this educational programme. This course has become very popular amongst the sleep medicine community and it is in high demand. He wants the programme to continue for years to come and at the same time reduce the dependency on the sponsor money. As a service to the motherland, Dr Shrivastava and his wife Kavita Shrivastava have donated generously to build a CORPUS FUND for this purpose.



ISSR will utilize this money for providing financial support for running the National Sleep Medicine Course. The fund will be named as "NSMC Corpus Fund". Donations from other sources will also be accepted for enhancing the Corpus Fund. The interest accrued from this corpus fund will be utilized primarily for providing seed money for running the National Sleep Medicine Course. The seed money will be given with the understanding that it will be returned after the NSMC. It will be described as a loan so that the NSMC organizer will not face any audit objection while returning the money. The returned money will be added to the corpus fund. The President of ISSR is authorized to write off the given seed money if the NSMC does not make profit. He is also authorized to work out the appropriate modality for managing the "NSMC Corpus Fund". The President of ISSR will have the authority to utilize the interest money for any other need, in exceptional circumstances, as per the demand of the situation.



Photo Gallery



International conference

PHOTO GALLERY



ISSR Activities

PHOTO GALLERY



National Conferences

PHOTO GALLERY

First Workshop on Sleep Technician Course -
13th December 2012 NIMHANS, Bangalore



NSMC 2007 , the second
National Sleep Medicine
Course,
14th & 15th Dec.2007
NIMHANS,Bangalore
Dr. Bindu M. Kutty
Organizing Secretary



ISSR Conferences

PHOTO GALLERY



NSMC

PHOTO GALLERY



Twenty five years back in September, 1992 we were able to organize an International Congress on Sleep-Wakefulness. It was held at Hotel Sofitel Surya, New Delhi, India. It was a memorable event for us, not only because the Congress was attended by several distinguished scientists from India and abroad, it also witnessed the formation of a Society in India for those people working in the field of sleep science and medicine. On 10th September, 1992 the Indian Society for Sleep Research (ISSR) was formed. A lot of spade work had to be done for several months and even years, and several obstacles had to be crossed, before the formation of the ISSR. For an important event like this it was necessary to get around several important people not only to support the idea, but also to come for this meeting. As it is a national society, it was also necessary to have gatherings from all over India. It was necessary to mobilize finances to enable people from different parts of India to come to Delhi and also to provide a comfortable stay for them in the capital city. More than the financial aspect, there had to be a scientific justification for coming to Delhi. Academic Institutions provide leave (and some of them provide travel allowances) to attend scientific conferences, but not for attending a meeting to form a Society. Though this was the situation at that time, it is not much different even today. So in that context it was important to hold an international conference on Sleep-Wakefulness.

The gathering of sleep science experts from different parts of the world during the International Congress on Sleep-Wakefulness provided the right atmosphere for founding the ISSR. Organizing the International Congress was also not very easy at that time. The only sources of funding for any conference at that time were the Government agencies like DST, CSIR and ICMR. All of them give funding only to registered professional societies. So the first task was to get some registered professional societies to sponsor the conference. The choice fell on the Neurological Society of India. At that time sleep science and sleep medicine were considered as parts of neuroscience in India. But they were not willing to consider our request. The next choice was the Association of Physiologists and Pharmacologists of India (APPI). Incidentally I was the Finance Secretary of the APPI at that time. That helped us to get the proposal accepted by the Executive Committee and General Body of the APPI. In addition to thanking the APPI for sponsoring the conference, I should also thank Dr. Harish Gupta, the Secretary of APPI, for the support and encouragement provided by him. I learnt the nuances of organizing the International Conference and forming the professional society from Dr. SK Manchanda. Though I was not close to him, I should admit that he was a great organizer. I was the Joint Secretary of the Congress of Asian & Oceanian Physiological Societies which was organized by him at New Delhi during November 1990. I was also the Secretary of the Federation of Indian Physiological Societies that he formed. From these exposures I understood the importance of having a professional society for encouraging and projecting the work of Indian scientists and professionals.

The gathering of sleep science experts from all over the world during the International Congress on Sleep-Wakefulness provided the right forum to start the ISSR. We also made it a point to invite several sleep scientists and physicians from Asian countries. Naturally the largest contingent came from Japan. Prof. S Inoue from Tokyo, Japan helped us a lot in organizing the scientific programme. He also facilitated the visit of a good number of Japanese sleep specialists. We had to get the clearance from the Ministry of Health and External Affairs to arrange visas for the foreigners. Officials in the ministries were very helpful, possibly because I was from AIIMS. We were even able to arrange visas for Prof. Askenasy JJM from Israel, and Prof. Liu SY from China, even though, at that time, there was an official restriction on people from Israel and China visiting India. We were also aware of the fact that an Indian society would remain an isolated entity,

unrecognized by anyone, unless it had the adherence of (or attachment with) international societies. For that purpose, it was necessary to form an Asian Society. That was the reason why we made it a point to invite all the prominent sleep scientists from Asia. With the help and support of Prof Inoue, Prof Askenasy, Prof Liu, and Prof Honma the Founding Committee of the Asian Sleep Research Society was formed on 11th September, 1992.

During the last 25 years ISSR had initiated several new activities apart from conducting national and international conferences. The other activities conducted by the ISSR include the courses on sleep medicine and technology. It also started the certification programmes for physicians and technicians. ISSR members had also conducted several public awareness programmes in different parts of the country. Promoting education and training in sleep medicine are among the main objectives of the ISSR. It also aims at establishing and maintaining standards of reporting and classifying data in the field of sleep medicine. The last, but not the least, it also started its own international journal under leadership of Dr. Ravi Gupta and Dr. Pandi Perumal. ISSR provides a common forum for interaction between the members working on different aspects of sleep research and medicine. ISSR had supported, and will continue to encourage, the growth of sleep medicine and research in India.

In this year when ISSR is celebrating its silver jubilee, I should pay tributes and acknowledge the contributions of late Dr. B Ramamurthi who acted as the first President, late Dr. T Desiraju and late Dr. MK Chandrashekar who were the Vice Presidents of the Society. They were all not only great scientists whom any Indian can be proud of, their support to the ISSR had gone a long way in attaining the position and prestige that this Society enjoys today. During these 25 years several people played a crucial role in conducting the various activities of the ISSR. It will be difficult to name all of them, but nevertheless some of them who had made major contributions can be mentioned. Dr. HN Mallick (the present President of ISSR) organized the First National Conference of the ISSR during September 5-7, 1997, at AIIMS, New Delhi. The Second National Conference of the ISSR was held on September 6-7, 2002, by Dr. Bindu M Kutty, at NIMHANS, Bangalore. The Interim Congress of World Federations of Sleep Research and Sleep Medicine was held at Habitat Centre, New Delhi, during September 22-26, 2005, by Dr. HN Mallick, as Organizing Secretary. The Third National Conference of the ISSR was held on December 16, 2007, at NIMHANS, Bangalore by Dr. Bindu M Kutty. The fourth National Conference of the ISSR was conducted by Dr. Kamalesh K Gulia at Trivandrum, Kerala, during December 2010. The 8th Congress of the Asian Sleep Research Society was also conducted by Dr. Kamalesh K Gulia at Trivandrum, Kerala, India during September 22-24, 2014.

National Sleep Medicine Course (NSMC) is an annual academic venture of ISSR with teaching faculty not only from India but also from USA and Japan. Due credit for this venture should go to Dr Deepak Shrivastava from USA. National Sleep Technology Course (NSTC) was held regularly on a yearly basis at AIIMS, New Delhi from the year 2014 onwards by Dr. HN Mallick. The silver jubilee conference of ISSR is taking place at Goa, during September 20-23, 2017. This includes National Sleep Technology Course on 20th September 2017, National Sleep Medicine Course on 21st September 2017, and the International Conference on Sleep Medicine and Research during 22nd and 23rd September 2017. They are being very efficiently organised by Dr. Bindu Kutty and her team of young colleagues. Dr. H.N. Mallick has done a good job of coordinating the activities and selecting the venue after an all India search. Dr. Deepak Shrivastava and Dr. Karuna Datta have been lending a helping hand, wherever possible, in organizing NSMC and NSTC.

I sincerely wish all success to the ISSR for all its scientific, academic and professional activities.

V. Mohan Kumar

THE INDIAN SOCIETY FOR SLEEP RESEARCH
Registration No. S/23425 of 1992
(Registered under Societies Registration Act XXI of 1860)

MEMORANDUM OF ASSOCIATION

Name of the Society

The name of the Society shall be the INDIAN SOCIETY FOR SLEEP RESEARCH (It will be referred to as ISSR in short form).

Aims & Objectives

The purpose of the Society is exclusively scientific, academic and literary. For the furtherance of these aims the objectives of this Society shall be:

- (a) To foster research on all aspects of sleep and wakefulness
- (b) To provide a forum for the exchange of information pertaining to sleep research, including holding of periodic scientific meetings;
- (c) To promote education and training in sleep-wakefulness research;
- (d) To establish and maintain standards of reporting and classifying data in the field of sleep-wakefulness research;
- (e) To provide a common forum for interaction between the members working on different aspects of sleep-wakefulness research.

All the incomes, earnings, movable and immovable properties of the Society shall be solely utilized and applied towards the promotion of its aims and objectives only as set forth in the Memorandum of Association and no profit on thereof shall be paid or transferred, directly or indirectly by way of dividends bonus, profits or in any manner whatsoever to the present or past members of the Society or to any person claiming through any one or more of the present or the past members. No member of the Society shall have any personal claim on any movable or immovable properties of the Society or make any profits, whatsoever, by virtue of this membership.

RULES AND REGULATIONS

MEMBERSHIP

The Society will have Life members, Regular members, and Corresponding members.

- (a) Life members shall be members who have an interest in the field of sleep wakefulness. He should have an academic degree in a field related to sleep-wakefulness. The Executive Committee shall be empowered to determine the professional suitability of members. Life members shall have voting privileges throughout their life. They are required to make onetime payment of an amount which is ten times that of the annual subscription.
- (b) Regular members shall be members who have interest in the field of sleep research. They should have an academic degree in a field related to sleep-wakefulness. Regular members are required to make an annual subscription to the Society. They will have voting right during the period for which they have paid the subscription.
- (c) Corresponding members shall be distinguished non-Indian scientists in the field of sleep research. They shall be exempted from payment of all dues and may, at the pleasure of the executive, receive ISSR publications free of charge. They do not have voting privileges.
- (d) Honorary members (rules to be formulated)

ADMISSION AND QUALIFICATION FOR MEMBERSHIP

All applications for membership to the Society may be accepted by the Executive Committee, or by the President, General Secretary/ Treasurer, on behalf of Executive Committee.

SUBSCRIPTION

Subscription for the Life members shall be onetime payment of either Rs. 2000/- . Each Regular member will be an annual subscription of Rs. 200/- per year. This amount can be altered from time to time by the General Body.

CESSATION OF MEMBERSHIP

Any member may withdraw from the Society after fulfilling all obligations to it, by giving written notice of such intention to the President. The President or General Secretary shall be empowered to accept the registration.

Suspension of Members: Any person may be suspended for a period or expelled from the Society with or without cause by a two-thirds vote, taken by secret ballot, of the members present and voting at an annual business meeting provided a quorum is present. Such a vote shall be taken only upon the recommendation of the Executive Committee serving as a Special Review Committee. The President shall be the chairperson of the Special Review Committee. The Special Review Committee shall accumulate the relevant facts, and afford the opportunity for the members to answer the charges against him/her either in writing or by appearing in person before the Special Review Committee. The member shall be notified by registered mail at his/her last recorded address atleast fifteen (15) days before a final recommendation is taken thereon by the Special Review Committee. Prior to the presentation for a vote of the membership, the recommendation of the Executive Committee for suspension or expulsion shall be approved by a majority vote, taken by secret ballot, of the Executive Committee, or if action prior to their meeting is deemed necessary by the Special Review Committee constituted by the President.

RIGHT & PRIVILEGES OF MEMBERSHIP

- (a) Each life member of the ISSR will have the right to attend and vote for life time in the business meeting of the General Body of the Society. Each regular member will have voting right for the period that he had paid subscription.
- (b) Each member will be eligible to participate in the scientific deliberations and other activities organized by the Society.

GENERAL BODY

The Society shall have a General Body which will be its deliberative body and will consist of all the members of the Society. In addition to discharging such duties as may be prescribed by the Constitution and By-laws of the Society, the General Body shall act as an advisory body in matters pertaining to the general management of the Society. The President and General Secretary of the Society shall be the Chairman and Secretary, respectively of the General Body.

POWERS, DUTIES, AND FUNCTIONS OF THE GENERAL BODY

In a General Body meeting the following matters shall be discussed.

- (a) Confirmation of the minutes of the last General Body meeting.
- (b) Matters related to the promotion of sleep research in India.
- (c) Activities of ISSR since the last General Body meeting
- (d) The consideration of the annual statement of accounts and audited balance sheet and of the auditor's report and the inspection notes of the Registrar and the Inspector.
- (e) The amendment of the By-laws subject to the sanction of the Registrar.
- (f) For any change in Constitution or By-laws, a proposal, passed by a majority of

the General Body, will be circulated among members. It has to be supported by a 2/3 majority (or not objected to by more than 1/3 members) in circulation.

- (g) The President, Vice President, Treasurer and General Secretary shall be elected by a majority vote of the General Body.

QUORUM AND NOTICE OF THE MEETINGS AND PERIOD OF MEETING

- (a) The presence of at least one sixth of the members shall be necessary for the disposal of any business at the meetings.
- (b) At least 10 days notice of a General Body meeting shall be given to members.
- (c) If the quorum of the meeting is not complete on the day of the General Body meeting, fixed by giving at least 10 days notice, the meeting can be recommended at a suitable time fixed by a majority vote of the members who are present at the regular meeting. No minimum quorum is required for the reconvened meeting.

EXECUTIVE COMMITTEE

The Executive Committee will have the executive rights and duties to run the Society on day to day basis.

COMPOSITION & STRENGTH

The Officers of the Society shall be the President, Vice President, General Secretary and Treasurer. The Executive Committee shall consist of the President, General Secretary, Treasurer and five members. Council members are not entitled to nominate others to represent or vote for them in their absence.

ELECTION AND ITS MODE

The Officers of the Society will be elected by the General Body of the ISSR for a period of four years and shall not be eligible for more than two consecutive terms to the same post.

All Executive Committee members including Officer, e.g. President, Vice President, Treasurer and General Secretary shall be elected by a majority vote of the General Assembly through the mechanisms recommended by the Committee.

TERMS OF THE OFFICE OF THE EXECUTIVE COMMITTEE

The Officers shall be elected for a term of four years and not be eligible for more than two consecutive terms. An officer appointed to fill a vacancy occurring between meetings of the General Body shall hold office for the unexpired term and may be elected for two more terms. Consecutive service as an officer in the same post shall not exceed nine years. When new Officers are elected by the General Assembly their predecessors shall continue in office until 31 December next after the election.

The names, addresses, occupation and designation of the elected members shall be sent to the Registrar of Societies, Delhi under the provision of sec. 4 of Societies Registration Act.

POWERS AND DUTIES OF OFFICE BEARERS

The duties and the functions of the Officers will be set forth in the By-laws as recommended by the General Body. In addition the following duties will be performed by the officer bearers.

1. PRESIDENT

- (a) Shall preside over all the meetings of Executive Committee as well as the General Body of the Society;
- (b) Shall supervise, manage, control and look after all the works of the Society;
- (c) Shall be the Head of the Society;
- (d) Shall have a right to cast vote in case of tie;

- (e) Any other function authorized by the General Body;
- (f) Shall be empowered to give consent to the General Secretary for a sum above Rs. 1000/-

2. VICE PRESIDENT

Shall perform all acts, deeds and works done by the President in his absence and help him in all works and matters of the Society.

3. GENERAL SECRETARY

- (a) Shall call the meeting of the Executive Council as well as the General Body after getting the consent of the President. Shall be responsible for informing all the members for such meetings. Shall maintain Minutes of the meetings of the Council and General Body and circulate them;
- (b) Shall run the Society on day to day basis and shall represent the Society in all its activities;
- (c) Shall maintain liaison with the members;
- (d) Shall make all correspondences on behalf of the Society with all Govt/Private Offices;
- (e) Shall be empowered to make expenses up to a sum of Rs. 1000/- at a time for the works of the Society. Should attain the written consent of the President for expenses exceeding this limit;
- (f) Shall perform any other duty allocated by the President/General Body;
- (g) To appoint any one on temporary basis for the work of the Society;
- (h) To sanction wages for any employee. If wages exceed Rs. 1000/- per month, it should be approved by the President.

4. TREASURER

- (a) Shall prepare the accounts of income and expenditure of the Society and shall get the same approved by the General Body Meetings;
- (b) Shall keep and maintain the records of income and expenditure of the Society;
- (c) Shall collect the subscription of the Society;
- (d) Shall pay the amount passed by Executive, General Secretary or General Body and shall obtain the receipt for the same;
- (e) Shall keep with him/her a sum of Rs. 500/- for the emergency needs for the functioning of the Society, and shall deposit all excess amount in any scheduled bank in the name of the Society;
- (f) Shall perform any other duty allocated by the President/General Secretary/General Body;
- (g) Shall perform the duties of the General Secretary in his absence.

POWERS/DUTIES/FUNCTIONS OF EXECUTIVE COMMITTEE

The Executive Committee shall exercise all the powers of the Society except those reserved for the General Body meeting, subject to any regulations or restrictions only laid down by the Society in the meeting or in the By-laws; and in particular shall have the following powers and duties:

- (a) To observe, in all their transactions, the Society Registration Act, and the notified rules and the By-laws of the Society (ISSR);
- (b) To maintain true and accurate account of all money received and expended;
- (c) To keep a true account of the assets and liabilities of the society;
- (d) To keep a register of members correct and up to date;
- (e) To prepare and lay before the General Assembly an audited balance sheet;
- (f) To examine the accounts, sanction contingent expenditure, and supervise the maintenance of the prescribed registers;
- (g) To appoint, suspend or dismiss an employee
- (h) Generally to carry on the business of the Society

QUORUM AND NOTICE OF THE MEETING

Meetings of the Council shall be held whenever, necessary. The attendance of at least one third members shall be required for the disposal of any business. A notice of minimum 10 days will be required to hold a valid meeting.

FILLING UP THE CASUAL VACANCIES

If there is any vacancy due to resignation/death/or any other cause, of any office bearer or member of the Executive, the same shall be filled up by the Executive Committee or by the President with the approval of the Executive Committee obtained by correspondence. The approval of the same shall be obtained from the General Body during its next meeting. An officer appointed to fill a vacancy occurring between the meetings of the General Body shall hold office for the unexpired terms and may be elected for two more terms.

SUB-COMMITTEE, AND COMMISSIONS IF ANY, FORMATION, COMPOSITION, DUTIES AND FUNCTIONS

Sub-Committees/Commissions can be formed by the Executive Committee to deal with specific tasks. The Executive Committee will also formulate the duties and functions of Sub-committees/Commissions as and when formed.

SOURCE OF INCOME AND UTILISATION OF FUNDS

The source of the income of the Society will be:

- (a) Admission fee
- (b) Subscription
- (c) Donations
- (d) Aids/Grants by Government or/and Private Philanthropic Organization
- (e) By cultural and scientific programme

The funds of the Society shall be utilized to fulfill the aims and objectives of the Society.

Each member of the Society shall pay annual dues to the society at a rate determined by the General Body upon recommendation by the Executive Committee.

All memberships shall be renewable and dues payable as on April 1. All new members should be liable for their dues for the ensuing year on the first day of April after their election

If necessary, the Society may provide a partial financial support as seed money to promote the organization of its conference. This decision shall be made by the Executive committee.

In the event of dissolution, or termination of the Society, title to and possession of all the property of the Society shall pass forth with to such organization as is dedicated to similar purposes and the General Assembly of the Society shall be deemed best qualified to carry on the functions of the Society and decide its future.

FINANCIAL YEAR

The financial year of the Society shall be from 1st April to 31st March of the next year.

AUDIT OF ACCOUNTS

A registered Auditor shall be appointed to inspect the records of income and expenditure of the sec. He will submit his report to the Executive Committee.

OPERATION OF BANK ACCOUNT

All the incomes of the Society shall be deposited in a scheduled bank or post office, selected by the Executive Committee. The withdrawal of money from the said bank or post office can be done only with the signature of Treasurer, Vice President and General Secretary. Any two of these should sign the

cheques for withdrawal of money.

ANNUAL LIST OF MANAGING/GOVERNING BODY (Sec.4 of Act)

Once in every year a list of the office-bearers and members of the Society shall be filed with the Registrar of Societies, Delhi as required under Sec. 4 of the Societies Registration Act, 1860.

LEGAL PROCEEDINGS (Section 6 of the Act)

The Society may sue or be sued in the name of the President, General Secretary as per provisions laid down under sect. 6 of the Societies Registration Act, 1860 as applicable to the Union Territory of Delhi.

AMENDMENT

Any amendment in the Memorandum of Association or Rules will be carried out in accordance with the procedure laid down under the sec. 12 and 12A of the Societies Registration Act, 1860.

DISSOLUTION AND ADJUSTMENT OF AFFAIRS

If the Society needs to be dissolved, it shall be dissolved as per provision laid down under sec. 13 & 14 of the Societies Registration Act, 1860 as applicable to the Union Territory of Delhi.

APPLICATION THE ACT

All the provisions under all the sections of the Societies Registration Act, 1860 as applicable to the Union Territory of Delhi shall apply to the Society.

ISSR

Past
Presidents

Since 1992



Padma Bhushan Dr. B. Ramamurthi, the first President of ISSR was born on 30 January 1922 in Sirkazhi, a municipal town in Nagapattinam district in Tamil Nadu. His father Captain T. S. Balasubramaniam was an Assistant Surgeon in the Government Hospital. A pioneer in neurosurgery Dr. Ramamurthi is often referred to as the Father of Neurosurgery of India. He started the Department of Neurosurgery at the

Madras Medical College at Chennai in 1950 and founded the Institute of Neurology, Madras in the 1970s. He was awarded the Padma Bhushan in 1972 for his contribution to the field of Neurosurgery in India.

Dr. Ramamurthi had always made it a point to attend all the meetings of ISSR. Apart from supporting sleep research activities in India, he attended the Founding Congress of Asian Sleep Research Society (ASRS) on June 16, 1994 at Tokyo, Japan. During this Congress he spoke about the fourth state of consciousness, the Turiya. His talk was well received not only by Asians but also by the delegates from US and Europe.

In 1960, Dr. Ramamurthi and his colleagues became the earliest team in India to perform stereotactic surgery procedures in patients. He was the Honorary Vice Chancellor of the University of Madras during his long and extensive years as a teacher, mentor and guide. He was elected as the President of the World Federation of Neurosurgical Societies in 1987. National Brain Research Centre at Manesar, near New Delhi, an apex brain research centre in the country, was the brain child of his and Dr. P.N. Tandon. He became a Fellow of the National Academy of Medical Sciences in 1962. In 1987 he was appointed as the President of the National Board of Medical Examinations in India. Dr. Ramamurthi passed away on December 13th, 2003, at the age of 81 years, leaving behind a legacy which all neuroscientists in India must strive to follow.



Dr. V. Mohan Kumar did post graduation in Physiology in 1968 from Madras Medical College, Chennai. After taking PhD in Physiology in 1971 from the All India Institute of Medical Sciences (AIIMS), New Delhi, under the guidance of Prof. G.S. Chhina and Prof. B.K. Anand, he joined the faculty of AIIMS, New Delhi in 1972 and retired as Head of the Department of Physiology, AIIMS in 2006. He got

attracted to the subject of “Sleep” because of close personal rapport with late Prof. Baldev Singh, who was then working as Emeritus Professor in the Department of Physiology, AIIMS. Dr. V. Mohan Kumar went to Milan, Italy in 1977 to work for a year with Prof. Mancina, the disciple of Morruzi who discovered the function of Ascending Reticular Activating System. Dr. V. Mohan Kumar did research work on neural regulation of sleep. He established the first telemetric sleep recoding laboratory at the department of Physiology, AIIMS, and dedicated it to the memory of Prof. Baldev Singh.

Dr. Kumar formed the Indian Society for Sleep Research, and is the founder member of Asian Sleep Research Society. He was the first Asian to be elected as the Vice-President of World Federation of Sleep Research Societies. He was the President of Asian Sleep Research Society. After his retirement he worked as Visiting Professor and Emeritus Scientist at Sree Chitra Tirunal Institute for Medical Sciences and Technology, the DST institute in Thiruvananthapuram, Kerala, where he established the Comprehensive Centre for Sleep Disorders.