

SleepWatching India

Indian Society for Sleep Research (ISSR) Newsletter Issue 5

01/05/2017

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Message from President ISSR



Dear Friends,

It gives me great pleasure in releasing the 5th issue ISSR Newsletter '**Sleep Watching India**' just before the summer vacation. Dr. Tripat has again done a great job bringing it not only on time but also has added new features.

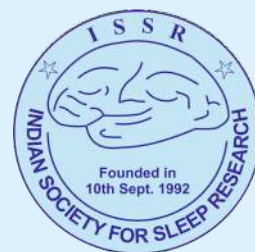
When you go through 'From The Editor's Desk' column, you will come across these newly introduced features. Forensic sleep medicine, sleep apps and media news on sleep will definitely attract more readers.

The 25 years celebration of ISSR is knocking at the door. We have finalized the plenary lectures and the symposia. A Gala dinner with Silver Jubilee Symposium is waiting for you on September 22nd. We are expecting record participation during this commemorative event.

We look forward to seeing you in GOA.

Sincerely yours,
Hrudananda Mallick

Sleep Well. Sleep on Time.



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Newsletter Editor

Dr. Tripat Deep Singh



Person suffering from Sleep Disorders may commit crime. As a Clinical community we should be aware of legal aspects in this regard. So, I am starting a new corner on **“Law and Sleep Science”**. Dr. Michel A. Cramer Bornemann has agreed to contribute to this section in future issues on regular basis. I am thankful to him for sharing his expertise with us.

World Sleep Day was on 17-18 March 2017. The theme of this

year World Sleep Day was **“Sleep Soundly, Nurture Life”**. On this occasion several activities were held in different parts of the country, which are summarized in section **“World Sleep Day activities in India”**.

Two Sleep labs details are provided in the section **“Sleep Labs in India”**. One Sleep lab is in Institute of Neurosciences Medanta Gurgaon headed by Dr. Abdul Muniem and other is Amara Sleep Lab in Tirupati headed by Dr. Ramadevi Gourneni.

Sleep lab from St. Lukes Medical Centre Philippines is featured in the section **“Sleep Labs in ASEAN Region”**. Dr. Keith Auguilera heads this lab.

Sleep Technologist Mr. Utsav Bansal shares his personal experiences and opinions on Sleep Technology as a profession in the section **“Personal Opinions of SleepWatcher”**.

Dr. Deepak Srivastava has contributed questions with answers for **“Board Review- Sleep Technology”** and **“Board Review- Sleep Medicine”**. This section will be useful for those who plan to take the Board exams for Sleep Medicine and Sleep Technology.

Mr. Bharat Singh discusses the must know concepts about **“Technology for Measuring Respiration during Sleep Study”** in the section of **“PSG Secrets”**.

Dr. Tripat Deep Singh discusses the must know concepts about **“Respiratory System during Sleep”** in the section of **“Sleep secrets”**.

I am starting two new interesting sections in this issue- **“Sleep and Digital App’s”** and **“Sleep News in Media”** which will be a regular feature in future issues. Useful apps for Bedwetting patient are highlighted in the **“Sleep and Digital App’s”** section of current issue. The highlighted app is **“My Dryness Tracker”**.

Sleepcon 2017 is highlighted in **“Sleep Events in India”**.

I hope the readers will find the information in this issue useful and interesting and I look forward for your valuable feedback to further improve/enhance the future issues.

Dr. Tripat Deep Singh.

ISSR Activities

2014	2015	2016	2017
WSF Exam 13 July 2014 Online exam No. Of Applicants=3	WSF Exam 26 July 2015 Online Exam No. Of Applicants=5	WSF Exam 17- July 2016, Online Exam No. Of Applicants= 6	WSF Exam 11 June 2017 AIIMS Delhi, Online Exam
Asian Sleep Research Society (ASRS) Conference 22-24 Sep 2014 Kovalam, Kerala, India	National Sleep Medicine Course (NSMC) 5-6 Dec 2015 Guwahati, Assam India	National Sleep Medicine Course (NSMC) 2-4 Dec 2016 Dehradun, Uttarakhand India	National Sleep Medicine Course (NSMC) 21 Sep 2017, Goa
3rd National Sleep Technology Course (NSTC) 26-27 Sep 2014 Delhi, India	4th National Sleep Technology Course (NSTC) 9-10 Dec 2015 AIIMS Delhi, India	5th National Sleep Technology Course (NSTC) 29-30 Nov 2016 AIIMS Delhi, India	6th National Sleep Technology Course (NSTC) 20 Sep 2017, Goa
Workshop on Sleep Medicine at APICON 19 Nov 2014 Puri, Orissa, India	'Importance of Sleep in School Children' Program	IBSM exam for Sleep Technologist 31 July 2016 AIIMS Delhi No. Of Applicants= 3	IBSM exam for Sleep Technologist 11 June 2017 AIIMS Delhi
Instituted Budur Krishna Murthy Young Investigator and Travel award	Started Newsletter "SleepWatching India" and Literature Updates "Sleep Update India"	Launched Journal "Sleep and Vigilance" during NSMC in Dehradun	Silver Jubilee Congress of Indian Society for Sleep Research 22-23 Sep 2017, Goa

For more details on each activity please visit www.issr.in



National Sleep Medicine Course 2016

National Sleep Medicine Course 2016, an annual activity of Indian Society for Sleep Research was organized in Himalayan Institute of Medical Sciences, Dehradun between 2-4 Dec 2016. 72 participants attended the meeting who were trained by 25 Sleep Physicians from India and abroad in the discipline of Sleep Disorders.

Considering the increasing prevalence of sleep disorders among children, first day of the course was dedicated to sleep disorders related to children. Faculty members stressed the fact that sleep disorders that were once considered restricted to adult population e.g., obstructive sleep apnea, sleep deprivation and insomnia are not reported among children as well. They explained that a number of factors contribute to the increasing prevalence including, change in lifestyle, obesity among children, excessive use of gadgets and screens and tonsillar enlargement among children. In addition, awareness among the public is also bringing the children to medical specialists; however, many children do not get optimal treatment because they are never taken to sleep specialists. Adverse effect of sleep disorders on the growth of children, memory and behavior, hyperactivity was considered a cause of concern.

Rest of the two days, participants was explained about common sleep disorders seen in adult population. Two major focus areas were snoring/sleep apnea and insomnia. Adverse health consequences of snoring/ sleep apnea among adults such as high blood pressure, heart attack, stroke and diabetes were discussed in detail. It was discussed that these consequences might be prevented by optimal therapy of sleep apnea. Increasing trend of home sleep testing and automatic PAP therapy was discussed in the background of scientific data. It was emphasized that home sleep testing should be done carefully under the guidance of a sleep physicians only in selected cases. It was the consensus that sleep study should always be conducted in an established sleep laboratory where a sleep physician is available. Recent guidelines regarding sleep-study from American Academy of Sleep Medicine were also discussed and it was stressed that all cases of Congestive Heart Failure, Atrial Fibrillation, Stroke, Morbid obesity should be screened for presence of sleep apnea. Sleep[p specialists were concerned with the fact that sleep disorders are still not a priority for Government despite their established relationship with so many adverse consequences.

Inauguration ceremony was presided by Honb'le Vice Chancellor of Swami Rama Himalayan University. Dr Hrudananad Mallick, President, Indian Society for Sleep Research; Dr Deepak Shrivastava, Sleep Physician from USA; DR SL Jethani, Dean, Faculty of Medicine, SRHU; Dr Rajat Ray, Organizing Chairman and Dr Ravi Gupta, Organizing secretary shared the dais with chief guest.

Dr Dhasmana stressed on increasing the research and facilities in the area of Sleep Medicine and suggested that Yogic techniques like Yoga Nidra should be tested as possible treatment of insomnia.

Himalayan Institute of Medical Sciences, Dehradun has organized an essay competition on the occasion of World Sleep Day 2016 where students of various schools, medical colleges and nursing colleges participated. Winners were awarded during the ceremony.

Indian Society for Sleep Research has joined hands with World Sleep Federation in 2011 to certify the sleep physicians practicing in India. Since then 25 physicians have cleared the examination. Many of them were present during the ceremony and they were awarded the certificate by Dr HN Mallick. Dr Rajat Ray. Organizing Chairman welcomed the participants and vote of thanks was delivered by Dr Ravi Gupta.





Fifth National Sleep Technology workshop was conducted at the Baldev Singh Sleep Lab in Department of Physiology at All India Institute of Medical Sciences, New Delhi on November 29th and 30th, 2016. Sleep medicine is in its nascent stages in India and the workshop was envisaged to fill the gap between the need for quality sleep technicians in India and their availability. It is a career development program for sleep researchers. The aim of this course is to build a cadre of Polysomnographic technicians and researchers who would become global leaders in sleep technology and provide high quality sleep technology services. It provides an eclectic mix of didactic lectures and hands on training on polysomnography. It was conducted in collaboration with stalwart faculty of national and international acclaim.

International Faculty: Dr Deepak Srivastava from University of California, Davis, New Delhi, Dr Himender Makker from University College of London Hospital, Dr Tripat Deep Singh from Singapore.

National Faculty: Dr V Mohan Kumar from Trivandrum, Dr HN Mallick from AIIMS, Dr Karuna Dutta from AFMC, Pune, Dr Preeti Devnani from Jaslok Hospital, Mumbai, Dr Apar Jindal from Apollo Hospitals, Chennai, Dr Manjari Tripathi, Dr Garima Shukla and Dr Nasreen Akhtar from AIIMS, New Delhi.

The workshop targeted sleep technicians, EEG technicians, health professionals and individuals interested in a career in sleep medicine. The participants were from states of Jharkhand, Andhra Pradesh, Tamil Nadu, Maharashtra, Uttarakhand, Rajasthan and Delhi itself. Participants belonged to prestigious institutions of AIIMS Jodhpur, KMC Manipal, CMC Tamil Nadu, AFMC Pune and Sir Ganga Ram Hospital, New Delhi, among others.

The workshop was conducted under the leadership of Prof. HN Mallick and organizing Secretary Dr Nasreen Akhtar from AIIMS, New Delhi. The workshop was followed by a public lecture by the faculty on “Lack of sleep is a public health issue”. It was a resounding success with overwhelming public response. Over 500 people turned up for the lecture. There was an excellent feedback of the workshop by the participants and the next edition will be conducted on November 2017 at Department of Physiology, AIIMS, New Delhi.



JOB OPPORTUNITIES

Singapore's leading private sleep disorders centre seeking junior and senior sleep polysomnographic technologist and electroencephalographic technologist. New candidate should have medical background eg. nursing, biochemistry, medical technology or biomedical engineering. Training and preparation for board registry examinations will be provided. Experienced personnel to be board registered should apply. Interested candidates should email full resume with expected remuneration to –

enquiries@sleepwakecentre.com

Sleep Forensics



Michel A. Cramer Bornemann,

MD, D-ABSM, FAASM

Lead Investigator- Sleep Forensics Associates (SFA)

Member- Thomson Reuters Expert Services

www.sleepforensics.org

Minneapolis/Saint Paul, Minnesota, USA

Director- Sleep Medicine Services

Olmsted Medical Center

Rochester, Minnesota

Visiting Professor- Sleep Medicine Fellowship

Minnesota Regional Sleep Disorders Center

Hennepin County Medical Center

Minneapolis, Minnesota

What is the role of Sleep Forensics?

Sleep Forensics Definition: The application of the principles and tools of neuroscience as applied to Somnology and sleep medicine that have been widely accepted under international scientific peer-review to the investigation in understanding unusual, irrational, and/or bizarre human behaviors associated with alleged criminal behavior which is to undergo further examination in a conflict resolution legal atmosphere and/or courtroom.

The salient ethical decision for those who assume the mantle of the medical expert witness is to recognize and value the privileged position given within our society as an educator inside the legal

system by promoting current published peer-reviewed science while all along minimizing bias when rendering an opinion. Furthermore, the role of the expert witness is therefore to attempt to succinctly and clearly communicate scientifically valid information to the jury, who in turn determine culpability based upon this information. The weight of the decisions of either guilt or innocence should never rest in the hands of medical experts, whose task is to contribute to the due process of an efficient and functional legal system by ensuring that the jury is educated and well informed.

What kind of cases are referred to Sleep Forensics from US and across the globe?

Legal cases referred to the Sleep Forensics expert can be very broad but most often Parasomnias (or Sleep-Related Violence), Sleep Deprivation, and Adverse Effects of Medications. In the latter condition, it is not uncommon for a Sleep Forensics expert to be consulted concerning side effects or toxicology of prescription sedative-hypnotic agents.

The actual case referrals to Sleep Forensics Associates from 2006-2017 reveal the following top 3 medico-legal case referrals:

Sexual Assault/Rape

perhaps attributed to Sleep Related Abnormal Sexual Behavior, commonly referred to as Sexsomnia

DWI/DUI (Driving Under the Influence)

perhaps attributed to Zolpidem (Brandname- Ambien or Stilnox)

Assault or Homicide

perhaps attributed to NREM Parasomnia (specifically Confusional Arousals)

RE: keep in mind that the expert medical witness may be called upon by not only the defense but for the prosecution as well

Who can be an expert in the court for cases where some parasomnia is taken as a defense for crime?

Expert Witness Qualifications related to Sleep Forensics:

1. Must have a current, valid, unrestricted medical or appropriate psychology license
2. Must be a Diplomate of the American Board of Sleep Medicine, or have passed the American Board of Internal Medicine specialty examination in sleep medicine
3. Membership in the Sleep Research Society is strongly encouraged
4. Must be a recognized resource within the sleep medicine community and should have been actively involved in clinical practice in a manner consistent with the requirement of the criminal case at the time of the event

For instance, a Sleep Medicine physician who is an expert in Sleep-related Breathing Disorders (such as OSA) may not be an appropriate expert witness for a case for which Sleep-Related Violence may be involved if he/she has never published in Parasomnias or if the clinical experience of Parasomnias is very limited.

Given the essential position of *mens rea* in criminal law and the pivotal role of levels of consciousness, must have significant direct experience in either neurology and/or neuroscience

What is the most challenging aspect that an expert witness have to explain to court in such cases?

The most challenging aspect is the realization that the legal and medical systems are essentially diametrically opposed with different goals, missions, as well as languages. A medical expert should be able to understand these differences and to be able to communicate (and especially write) effectively to overcome the many conflicts.

Does offering a Clinical diagnosis sufficient for conviction in cases of sleep related violence where some parasomnia is taken as a defense for crime?

Cases with medicolegal implications are challenging as a clinical diagnosis may not be sufficient as it does not temporally address the *mens rea* (i.e. the state of mind... or degree of consciousness) directly related to the criminal allegation. It is exactly for this reason that formal polysomnography is of limited utility in forensics cases.

In many ways, the Sleep Forensics experts attempts to extrapolate the degree of altered consciousness attributed to any criminal allegation. For instance, a clinical diagnosis of “sleepwalking” may be insufficient as- just because the defendant has a compelling clinical picture of both remote and current “sleepwalking” does not necessarily mean that that is what happened during the course of the criminal allegation- as “sleepwalkers can still kill”...

What is your expert advice to anyone who is called as an expert witness in cases of Sleep related violence to establish underlying sleep disorder in a specific violent act?

From a Sleep Forensics perspective, it should be explicitly understood that when in a courtroom that the strength of the argument to either support or refute the defendant’s claim should be used alongside current neuroscientific models of consciousness and behavior and further sustained with the medical expert’s wealth of specialized clinical experience appropriate to the case. The goal is always to address “*MENS REA*” or the state of mind with any given Sleep Forensics case- the neuroscience of consciousness is key.

ATS Conference **19-24 May 2017** Wahington DC <http://conference.thoracic.org/attendees/future-conferences/>

Sleep **3-7 June 2017** Boston , US <http://www.sleepmeeting.org>

Chest Congress **7-9 June 2017** Basel Switzerland <http://www.chest-sgp-switzerland2017.org/congress.html>

National Sleep Symposium **17 June 2017**, Integral University Lucknow

XV Eurpean Biological Rhythm Congress **30 July-3rd Aug 2017** Amsterdam Netherlands <http://www.esrs.eu/conferences-events/all-events-at-a-glance.html>

NSTC **20 Sep 2017**, Goa, India <http://www.issr.in>

NSMC **21 Sep 2017**, Goa, India <http://www.issr.in>

Silver Jubilee Congress of Indian Society for Sleep Research **22-23 Sep 2017** Goa India <http://www.goasleep2017.com>

ERS **9-13 Sep 2017** Milan Italy <http://erscongress.org>

World Sleep **7-11 Oct 2017** Prague Czech Republic <http://www.esrs.eu/conferences-events/all-events-at-a-glance.html>

Sleep Downunder **25-28 Oct 2017**, Auckland Australia <https://www.sleep.org.au/conferences/sleep-downunder-2017>

Events in the Region and World

Dept. of Neurophysiology NIMHANS Bangalore
Workshop on PSG 17-18 March 2017



A two day workshop on “**Basics of Polysomnography and Sleep Physiology**” has been organized by the Human Sleep Research Laboratory, Dept. of Neurophysiology NIMHANS as a part of World Sleep Day celebration under the banner of ISSR. This was also an initiative to build awareness about the forthcoming ISSR 2017 conference at Goa. There were 45 registered participants from different parts of the country spanning young faculty and residents from Medical colleges, students from University and other Institutions.

The workshop started with a warm interactive introduction of workshop team and participants. Lecture series was kicked off with Dr. Bindu’s talk on “**Sleep Overview**” and “**Neural substrates of sleep**”. The talk covered the recent research updates on these two topics. This was followed by “**Fundamentals of Polysomnography**” lecture by Dr. Arun Sasidharan. This was a launching talk for the next session “**Basics of polysomnography and sleep stage scoring**” by Mr. Rahul Venugopal. Participants were taken through an interactive tutorial on sleep stage scoring. Afternoon session began with a practicum on nap study. Besides observing the demo in the sleep lab, the entire nap session was streamed to lecture hall and participants could visually appreciate the sleep stage patterns and their transitions on the go. This was truly a great interactive session and the participants were very happy and clarified the volley of doubts they had with respect to sleep stage scoring. A whole night Polysomnography session was organized at night. Participants observed the recording till midnight.

Second day of workshop began with an in depth talk on the “**Neurophysiology of Sleep**” by Dr. Ravindra and “**Sleep and memory**” by Dr. Bindu Kutty. Dr. Arun’s talk on “**Sleep Disorders**” was quite interesting and covered all the sleep disorders and their features in a nutshell. Lecture series concluded with a short session on “**Sleep Hygiene**” from Dr. Ravindra. In addition to the lecture series, the entire resource team of workshop engaged participants in the “**Sleep stage scoring**” of the previous night’s PSG record.

World Sleep Day Activities in India

This also provided another opportunity for the participants to do the sleep stage scoring online as we have streamed the scoring screen. Session was interactive with lots of queries and clarifications on scoring.

A surprise quiz program has been conducted as a concluding event, which was well received. Workshop was concluded with a certificate distribution ceremony, valedictory function, participant's feedback and a group photo session.

Workshop photos were tweeted on the occasion of World Sleep Day (#WorldSleepDay). We also submitted our activity to the world sleep society <http://worldsleepday.org/india-2017-dr-bindu-m-kutty>



World Sleep Day Activities in India



There was a book launch on the occasion of #World Sleep Day, we organised the book launch “The Sleep Solution” by Dr. Manvir Bhatia at India International Centre, New Delhi on 5th March 2017.

Our event started with a school choir performance by the students of DPS Noida. We also had a comedy show based on the theme “Laughter Is the Best Medicine” by Mr. Sandeep Sharma.

Our Panelists for the event were Dr. Ashok Seth, (Interventional Cardiologist & chairman at Fortis Escort Heart Institute-New Delhi), Dr. Anoop Misra, (Endocrinologist Chairman of Fortis Centre for Diabetes), Captain Dhruv, (Chief of Flight safety Indigo Airlines), Mr Sumant Batra, (Eminent Lawyer & The Founder of Kumaun Literary Festival). who discusses the relationship of Sleep with their respective fields.

This was attended by 150 people which included patients, family members, colleagues friends and media.

At the end of Panel discussion there was a question & answer session which was highly interactive with focused being on the relationship of sleep and good health.

Dept. of Pulmonary Medicine ST.JOHN'S NATIONAL ACADEMY OF HEALTH SCIENCES



We conducted awareness and screening camp for patients to our out-patient department. We screened almost 100 patients for Sleep Disorders with special emphasis on OSA. We also handed out Sleep Hygiene leaflets provided in the WSD Toolkit.

Somnos Sleep Clinic Kolkatta



World Sleep Day Activities in India

1. Corporate awareness program- A 1 hour public awareness campaign was conducted at Damodar Valley Corporation Headquarters, Kolkata attended by close to 50 participants. Talks are ongoing with Hindustan Unilever Ltd., ONGC and Tata Steel.

2. Clinician Awareness program-

- One CME was conducted at Peerless Inn, Kolkata, for Psychiatrists and also some Neurologists, Neurosurgeons, and Pulmonologists, attended by around 20-25 clinicians;
- Another multidisciplinary Medical CME was conducted at Iris Multispeciality Hospital on World Sleep Day which was attended by around 35-40 clinicians from varying backgrounds.

3. Public Awareness Program-

- Press conference was given on the day of World Sleep Day, 17 March 2017 and press release distributed among the media, attended by around 35 media persons including Doordarshan, Kolkata.
- Talk show on importance of sleep was recorded and aired on ETV Bangla on the same date (Youtube link: <https://www.youtube.com/watch?v=uW24VDqxwY&t=25s>).
- A prime time program on various sleep disorders including direct interviews of various patients suffering and under treatment of various sleep disorders is underway by ABP ananda news channel, followed by interview, going to be aired very soon.

An interview on common sleep disorders is planned and pending with Doordarshan, Kolkata.

**Himalayan Institute of Medical Sciences,
Swami Ram Nagar,
Jolly Grant, Dehradun**

मोटापा, हृदय रोग, मधुमेह, पक्षाघात, मानसिक रोग के रूप में सामने आते हैं अनिद्रा के दुष्परिणाम अनिद्रा की अनदेखी करना बीमारियों को न्योता

हेल्थ अलर्ट

देहरादून | कार्यालय संवाददाता

अनिद्रा को आमतौर पर लोग गंभीरता से नहीं लेते हैं। जिसके दुष्परिणाम मोटापा, हृदय रोग, मधुमेह, पक्षाघात, मानसिक रोग के रूप में सामने आते हैं। लोग कई बार नींद को दबाए लेना शुरू कर देते हैं। लोगों को जागरूक करने के लिए हिमालयन अस्पताल में 17 और 18 मार्च को निशुल्क जांच शिबिर लगाने जा रहा है। हिमालयन अस्पताल के निद्रा रोग

विशेषज्ञ डा. रवि गुप्ता ने बताया कि सामान्य व्यक्ति छह से सात घंटे में नींद पूरी कर लेता है। अगर सात घंटे सोकर जगने के बाद भी वह फ्रेश महसूस नहीं करता तो समस्या चाहिए कि उसे स्लीपिंग डिस्ऑर्डर है। डा. गुप्ता के अनुसार अब्सट्रैक्टिव स्लीप एनिया नाम की बीमारी कुछ साल पहले तक 40 साल से अधिक उम्र वाले लोगों में पायी जाती थी। यह एक सामान्य निद्रा रोग है और करीब 14 प्रतिशत भारतीय इससे पीड़ित हैं। इसका सामान्य लक्षण खरोंच आना है। एक स्टडी के मुताबिक इन दिनों तीन से 12 फीसदी बच्चे सोते समय खरोंच

ये भी हैं कुछ बड़े कारण

- जब व्यक्ति का जवड़ा सामान्य से छोटा होता है तो लेटने पर उसकी जीभ पीछे की तरफ हो जाती है और सांस की नली को ब्लाक कर देती है। ऐसे में सांस लेने और छोड़ने के लिए प्रेशर लगाना पड़ता है, जिस कारण वाइब्रेशन होता है।
- नाक की हड्डी टेढ़ी होना और उसमें मांस बढ़ा होना। इसमें भी सांस लेने के लिए प्रेशर लगाना पड़ता है। इस वजह से सांस के साथ आवाज आती है।
- वजन बढ़ता है, तो गर्दन पर ज्यादा मांस लटकने लगता है। लेटते समय एक्सट्रा मांस से सांस की नली दब जाती है और सांस लेने में दिक्कत होने लगती है।
- कई बार सांस लेने वाली नली संकरी और कमजोर होती है। जिससे सांस लेते समय आसपास के टिश्यू वाइब्रेट होते हैं और सांस के साथ आवाज लगती है।

लेते हैं। बताया आगामी 17 व 18 मार्च को निशुल्क जांच शिबिर हो रहा है। इसमें मरीजों के लिए पंजीकरण व

परामर्श पूरी तरह निशुल्क होगा। जबकि रोग संबंधित स्वास्थ्य जांचों पर 25 फीसदी छूट मिलेगी।

खर्राटे हैं खराब सेहत का संकेत, न करें नजर अंदाज

जागरण संवाददाता, देहरादून: स्लीप डिसऑर्डर को आमतौर पर लोग गंभीरता से नहीं लेते। जिसके दुष्परिणाम मोटापा, हृदय रोग, मधुमेह, पक्षाघात, मानसिक रोग के रूप में सामने आते हैं। निद्रा रोग से ग्रस्त कई लोग नींद की दवाई के आदी हो जाते हैं।

हिमालयन हॉस्पिटल के निद्रा रोग चिकित्सक डॉ. रवि गुप्ता ने बताया कि सामान्य व्यक्ति छह से सात घंटे में नींद पूरी कर लेता है। अगर सात घंटे सोकर जगने के बाद भी वह प्रेश महसूस नहीं करता तो समझना चाहिए कि उसे स्लीप डिसऑर्डर है। डॉ. गुप्ता के अनुसार ऑक्सिट्रैक्टिव स्लीप एनिया नाम की बीमारी कुछ साल पहले तक 40 साल से अधिक उम्र वाले

किस तरह के स्लीप डिसऑर्डर

अनिद्रा: नींद नहीं आना।
अति निद्रा: नींद ज्यादा आना।
रेस्ट लेस लेग्स सिंड्रोम: रात में सोने से पहले पांव में बेचैनी।

ऑक्सिट्रैक्टिव स्लीप एनिया: नींद के दौरान सांस का रुकना या खर्राटे आना।

विश्व निद्रा दिवस पर विशेष



लक्षण: लेटने के बाद तुरंत नींद का आना। सुबह नींद जल्दी खुल जाना। नींद में खर्राटे आना। गलत समय पर नींद आ जाना। किसी भी जगह नींद आ जाना।

भावियां: खर्राटे आने पर समझना की अच्छी नींद है। यह समझना की नींद की गोली से नुकसान नहीं होता। ज्यादा नींद आने को अच्छा समझना।

दुष्परिणाम: उच्च रक्तचाप, हृदय रोग, लकवा, डायबिटीज, मोटापा, दूर्यटनाएँ, पढ़ाई या काम में पिछड़ना, वादग्रस्त की कमी, दिमागी असंतुलन।

बचाव: सोने का वक्त नियमित रखें। सोने के पहले भारी खाना न खाएँ। सोने के एक घंटे पहले लैपटॉप या टीवी न देखें। सोने के पहले कॉफी, चाय, ड्रिंक, सिगरेट, तबाकू न लें।

लोगों में पायी जाती थी। यह एक सामान्य निद्रा रोग है और करीब 14 प्रतिशत भारतीय इससे पीड़ित हैं। इसका सामान्य लक्षण खर्राटे आना है। एक स्टडी के मुताबिक इन दिनों तीन से 12 फीसदी

बच्चे सोते समय खर्राटे लेते हैं।

17 व 18 मार्च को जांच शिविर विश्व निद्रा रोग दिवस के उपलक्ष्य में हिमालयन हॉस्पिटल की ओर से निश्चुल्क जांच शिविर का आयोजन

किया जा रहा है। इसमें मरीजों के लिए पंजीकरण व परामर्श पूरी तरह निश्चुल्क होगा। जबकि निद्रा रोग संबंधित स्वास्थ्य जांचों पर 25 फीसदी छूट मान्य होगी।

1. Camp was organised in the hospital facility for enhancing the awareness among public.

Free consultation was provided along with discount on the Polysomnography booked on those days (17-18 March 2017).

This event was covered in the local news papers along with information regarding sleep disorders to increase the awareness.

2. Essay competition was organised for the undergraduates (Medical/ Nursing and Paramedical) on the WSD theme.

Other activities planned:

1. Awareness program on Shift working in factory workers (April, 2017)
2. Awareness program for sleep among school kids (May 2017)



Essay Competition

निद्रा रोग से पीड़ित 50 लोगों ने शिविर में लिया परामर्श

संवाद सूत्र, डोईवाला: विश्व निद्रा दिवस के अवसर पर हिमालयन हॉस्पिटल में स्लीप क्लिनिक विभाग की ओर से दो दिवसीय निश्शुल्क स्वास्थ्य शिविर का आयोजन किया गया है। इसमें करीब 50 से ज्यादा रोगियों को निश्शुल्क पंजीकरण व स्वास्थ्य परामर्श दिया गया। शुक्रवार को मीडिया एवं पब्लिसिटी विभागाध्यक्ष डॉ. रोमिल भटकोटी ने बताया कि विश्व निद्रा दिवस के मौके पर हिमालयन हॉस्पिटल के स्लीप क्लिनिक विभाग की ओर 17 व 18 को दो दिवसीय निश्शुल्क स्वास्थ्य जांच शिविर का आयोजन किया जा रहा है। शिविर के पहले दिन करीब 50 मरीजों ने पंजीकरण कराया, जिसमें खरटे व नींद में सांस रुकने की समस्या से ग्रसित मरीज अधिक थे। निद्रा रोग चिकित्सक डॉ. रवि गुप्ता ने उन्हें स्वास्थ्य सलाह दी। डॉ. रुपाली, डॉ. आरती, डॉ. अनिल, डॉ. सविता चौहान, नितिन ने शिविर के संचालन में सहयोग दिया।

एसआरएचयू- हिमालयन हॉस्पिटल में आयोजित निश्शुल्क स्वास्थ्य शिविर में स्लीप स्टडी के जरिये निद्रा रोग का इलाज की दी जानकारी



एसआरएचयू में मरीजों को स्वास्थ्य संबंधी जानकारी देते चिकित्सक ● जागरण

● लक्षण

लेटने के बाद तुरंत नींद का आना, सुबह नींद जल्दी खुल जाना, नींद में खरटे आना, गलत समय पर नींद आ जाना, किसी भी जगह नींद आ जाना

● भ्रांतियां

खरटे आने पर समझना कि अच्छी नींद है, यह समझना कि नींद की गोली से नुकसान नहीं होता, ज्यादा नींद आने को अच्छा समझना

● दुष्प्रभाव

उच्च रक्त चाप, हृदय रोग, लकवा, डायबिटीज, मोटापा, पढ़ाई या काम में पिछड़ना, याददाश्त की कमी, दिमागी असंतुलन

एसआरएचयू में उपचार

एसआरएचयू के मीडिया एवं पब्लिसिटी विभागाध्यक्ष डॉ. रोमिल भटकोटी ने बताया कि हिमालयन हॉस्पिटल उत्तराखंड का एकमात्र हॉस्पिटल है, जिसमें स्लीप क्लिनिक है। यहां पर अत्याधुनिक मशीनों के जरिये रोग से ग्रसित व्यक्ति की स्लीप स्टडी की जाती है। (पॉलीसोमोनोग्राफी) के जरिये रोगी की पूरी रात स्लीप स्टडी की जाती है, जिससे उसके रोग की असल वजह व निदान को लेकर सटीक उपचार किया जाता है।

स्लीप डिसऑर्डर

अनिद्रा (नींद नहीं आना), अति निद्रा (नींद ज्यादा आना), रेस्टलेस लेग्स सिंड्रोम (आरएलएस)- रात में सोने से पहले पांव में बैचेनी होती है, ऑब्स्ट्रेक्टिव स्लीप एपनिया (ओएसए)- नींद के दौरान सांस का रुकना या खरटे आना।

Sleep Disorder Centre, Institute of Neurosciences, Medanta Gurgaon



Sleep Labs in India

When was your Sleep Lab started?

We started sleep lab in INSTITUTE OF NEUROSCIENCES at MEDANTA THE MEDICITY in the month of November 2016 which means we are still in infancy.

How many beds does the Sleep lab have for Level 1 Sleep studies?

There is 1 bed for Level 1 Sleep Study and we can do only 1 study per night.

What type of Diagnostic studies are done in the Sleep centre?

We have facilities to do Level 1 Diagnostic Sleep study, split Night Study, Titration Sleep Study, MSLT and Overnight Video EEG studies with PSG

What types of PAP titration facilities are available at your Sleep centre?

All modes of PAP titration are available including manual CPAP, BiPAP S, BiPAP AVAPS-AE, BiPAP S/T, BiPAP ASV, Auto CPAP and Auto BiPAP.

What are the educational/training opportunities available for Doctors and technicians at your Sleep centre?

As we have started just a couple of months back we have not yet started any official training programme for doctors or techs. However since we already have neurology superspeciality programme going on sleep disorders and PSG are part of regular academic programme.

We intend to extend the training facility to other doctors who are interested in sleep disorders in near future.

How many sleep techs are employed at the Sleep centre? What are their daytime and nighttime duties?

We have a comprehensive Electrophysiology Lab under Neurosciences where EEG, NCV, EMG, VEP BAER etc are done. Our technicians are part of the same group. 2 technicians alternately conduct overnight studies while 2 of our senior technicians alternately do initial scoring during the day before the final assessment by the doctor.

How many Level 1, level 3 studies, PAP titration studies, MSLT and MWT are done in one year?

Till now we have done 60 level 1 Split night studies and 4 concomitant EEGs along with level 1 studies. We have not done any MSLT or MWT so far.

What are the contact details of the Sleep centre- address, phone no., email id, website?

Institute of Neurosciences ,Sleep Disorder Centre , Medanta- The Medicity Sector 38 Gurgaon, Haryana, 122001 Landline no. +91 124 4141414. Extension 6610.

Dr Abdul Muniem
Mobile: 9811802123

Email:
abdul.muniem@medanta.org



Standing from left to right 1st row- Mr. Ashu Technician; Mr. Mukesh Sharma Senior Technician and Incharge electrophysiology and sleep; Dr. Atmaram Bansal Senior Consultant Neurology and Epileptology and over all incharge of Neuroelectrophysiology Lab.; Dr. Abdul Muniem Consultant Sleep specialist and incharge Sleep Lab.; Miss Jaya Technician trainee; Mr. Bittoo Kaushik Senior technician electrophysiology and sleep; Mrs. Nisha Sharma senior technician electrophysiology and sleep.

Standing behind Left to right- Mr. Uttam-Technician; Mr. Asib.-Technician trainee; Mr. Vishwajeet- Technician

Amara Sleep Clinic Tirupati



Sleep Labs in India

When was your Sleep Lab started?

It was opened on 16 Nov 2016 for seeing patients.

How many beds does the Sleep lab have for Level 1 Sleep studies?

There are 2 beds for Level 1 Sleep Study.

What type of Diagnostic studies are done in the Sleep centre?

We can do Level 1 and 3 Diagnostic Sleep studies, MSLT and MWT

What type of PAP titration facilities are available at your Sleep centre?

We can do CPAP and all BiPAP titrations

What are the educational/training opportunities available for Doctors and technicians at your Sleep centre?

At this time I have hired 4 technologists and am training them. After become more settled, I am hoping to start sleep fellowship training for doctors and psychologists as well as PSG training.

How many sleep techs are employed at the Sleep centre?
What are their daytime and nighttime duties?

Sleep centre have four technologists. During day shifts, they score Sleep studies, help maintain room and interview patients.

I am training them to educate patients about CPAP and screen for sleep disorders, and provide basic training on sleep hygiene particularly for shift workers in the companies.

What are the contact details of the Sleep centre- address, phone no., email id, website?

No website yet - It is being developed. Amara Sleep Center. Sri Krishna Enclave Unit 502. Opposite Ramee Guest line, Road Adjacent Indian Oil Petrol Bunk. Mangalam Road, Tirupati 517501. amarasleepclinic@gmail.com phone: +917032532555



How many Level 1, level 3 studies, PAP titration studies, MSLT and MWT are done in one year?

From nov 2016 to till date we have done following studies- A.Level-1 studies are Total-12 no's. in that 5 are CPAP Therapy, 1 is BIPAP Therapy, 6 are Diagnostic studies.

B. Level -3 studies Total = 23 no's



Dr. Ramadevi Gourineni

Adjunct Associate Professor of Neurology, Northwestern Feinberg School of Medicine
Managing Director, Amara Raja Infra pvt ltd



Team Fom left to right- Mr. D. Chand Basha – Technician, Mr. S. Thaheer – Technician, Ms. CK Divya – Technician, Mrs. B. Hema - Nurse &, Mrs. M. SreeDivya - Receptionist.

Sleep Labs in India

Sleep Lab, St. Luke's Medical Centre Philippines



Sleep Labs in ASEAN Region

When was your Sleep Lab started?

St. Luke's Medical Center was the first to have a sleep laboratory in the Philippines in 1992. It eventually opened the Comprehensive Sleep Disorder Center (CSDC) in 2000. It started offering a wide range of services for the treatment and diagnosis of sleep disorders as the specialty started to grow. In March of 2010, as the hospital opened a new branch in Global City, it extended the reach of the sleep center.

How many beds does the sleep lab have for Level 1 sleep studies?

St. Luke's Medical Center currently has 6 beds with Level 1 sleep study

What type of Diagnostic studies is done in the Sleep center?

The CSDC offers diagnostic and split-night polysomnography. Multiple sleep latency test (MSLT) and maintenance of wakefulness test (MWT) are also available.

What type of PAP titration facilities are available at your Sleep centre?

Therapeutic sleep studies of the center include continuous and bilevel positive airway pressure (PAP) titration.

What are the educational/training opportunities available for Doctors and technicians at Sleep centre?

The center just recently started a fellowship program for sleep medicine and there are currently two fellows in training. The sleep fellows together with the technician regularly receive lectures/activities from the sleep consultant staffs. Likewise, the consultant staffs are also active member of the Philippine Society of Sleep Medicine (PSSM) that conduct workshops for sleep technicians and conferences for those physicians interested in the specialty. The fellowship program at present is only open to local physicians who plan to practice outside Metro Manila. This is to hasten the growth of sleep medicine wider across the country.

How many sleep techs are employed at the Sleep centre? What are their day time and night time duties?

We have 5 staffs including the section manager. The shifts are as follows: 8am-4pm, 12pm-8pm, 8pm-4am, 9pm-5am

During a day shift, the staff makes sure that all the scheduled sleep studies had confirmed and received appropriate orientation prior to their appointments. Making sure that the center is stocked adequately is another important duty of the shift as it is difficult to obtain these supplies at night during a sleep study.

For the night shift duties, apart from conducting the sleep study, the staff coordinates with the sleep consultant any untoward events or episodes during the night. Placing patient comfort and safety during the whole duration of the study while maintaining quality data collection. They make sure all the emergency equipment is functional and on stand-by.

How many Level 1, Level 3 studies, PAP titration studies, MSLT and MWT are done in one year?

There were more than a 1000 sleep studies done in St. Luke's Medical Center last year in which over 600 studies include PAP titration. MSLT and MWT average around 5 a year.

What are the contact details of the Sleep centre - address, phone no., email id, website?

St. Luke's Medical Center - Global City, 32nd St. corner 5th Ave., Bonifacio Global City, Taguig City, Philippines, 1634
(+632) 789-7700 Loc 2009

sleepcenter.slmc.bgc@gmail.com



Dr. Keith Aguilera, DPBOHNS, FPSOHNS, FPSSM
Center Head, St. Luke's Medical Center - Global City
Program Director, Sleep Medicine Fellowship, St. Luke's Medical Center
Treasurer, Philippine Society of Sleep Medicine
Chair, Philippine Board of Sleep Medicine
Assistant Professor I, St. Luke's College of Medicine
Consultant, Department of Otolaryngology - Head and Neck Surgery, St. Luke's Medical Center, Philippine Academy of Sleep Surgery

In 2011, the Indian Society for Sleep Research (ISSR) constituted a ten member Indian Board of Sleep Medicine (IBSM) headed by a Chair. World Sleep Federation (WSF) conducts "International Sleep Specialist" exam and certifying exam for Sleep Technologists through IBSM. WSF has conducted the exam for Sleep Medicine doctor's 5 times since 2012 and 2 times for sleep technologists starting in 2015. Below is the list of Doctor's and Sleep technologists from India who have qualified the WSF exam.

Sleep Medicine Doctors

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

Sleep Technologists

2015 (Conducted by
ISSR-WSF)

Mr. John Mohd Nengroo
Ms. Anubha Sharma
Mr. Utsah Mahamallick
Mr. Basharat Ahmad
Mr. Rahul Rawat
Mr. Adil Ahmad
Mr. Bharat Shah
Mr. Utsav Bansal
Mr. Yuvraj Kumar

2016
(Conducted by IBSM)

Dr. Saumy Johnson
Mr. Awnish Kunwar Singh
Mr. Jaibeer Kumar

To verify the names of Doctors who have passed the WSF Exam, please visit World Sleep Society website:

<http://worldsleepsociety.org/programs/examination/recipients-of-sleep-specialist-certification>



“My name is Utsav Bansal. I enjoy meeting new people and finding ways to help them have an uplifting experience. I am associated with this sleep field for almost 3 years now, My journey so far is very amusing, and full of new learning and challenges, I want to help spreading awareness about sleep disorders so that people can change their life for something good “ U.B

Why did you choose to become sleep technologist?

Sleep medicine is a fascinating and rapidly expanding field of expertise, which has a lot of potential, I became a sleep technologist because I have always been fascinated with the brain and its many intricacies. My aspirations are to join a field that had more opportunities for learning and advancement.

What is the most challenging aspect of your profession?

Sleeping against the body clock.

Irregular schedules.

Tracking patients problems in middle of night, one should really have a great convincing art, witnessing some of the very rare human behaviors, handling seizures, [sleep apnea](#), patient stop breathing several times a night.

Do you think starting a 1yr diploma program in sleep technology in an institute of national importance will benefit the sleep technologists in India?

Yes , it will definitely improve the quality and quantity of sleep technologists. I strongly support for it.

What are career opportunities for sleep technologists in India?

In india sleep business is growing rapidly, and it may increase and advancement is being seen in this particular segment.

One can be a sleep technologist at almost all hospitals which have sleep disorder clinic.

One can be at a key position in companies dealing with sleep equipment's.

One can pursue his/her career in sleep research.

What is required to improve the quality of sleep technologists in india?

I personally believe opening new courses in this field should be a great help for beginners, and a governing sleep body, which take care of standard protocols for sleep.



Dr. Deepak Shrivastava MD, FAASM, FACP, FCCP, RPSGT
UC Davis School of Medicine, California, USA

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Board Review Corner- Sleep Technology

1. Arousal-producing noradrenergic cells that project directly to the cerebral cortex, hippocampus, amygdala, and other subcortical areas originate in which of the following areas of the brain?

1. Locus coeruleus
2. Raphe nucleus
3. Putamen
4. Wernicke's area

2. Of the following waveforms on a polysomnographic recording, which one warrants further evaluation?

1. Positive occipital sharp transients of sleep (POSTS)
2. Spike-and-slow wave activity
3. Mu rhythm
4. Benign epileptiform transients of sleep (BETS)

3. Which one of the following statements regarding sleep physiology is true?

1. Brain is less responsive to internal than external stimuli
2. Brain becomes more responsive to environmental stimuli
3. Both homeostatic and circadian processes determine the quality of sleep
4. Sleep is a passive state that was initiated through withdrawal of sensory input

4. Lesion in suprachiasmatic nucleus (SCN) will cause which one of the following changes?

1. Normal total sleep time but 24-hour rhythm of sleep and body temperature are abnormal
2. Normal total sleep time and 24-hour body temperature rhythm but 24-hour sleep cycle is abnormal
3. Reduced total sleep time but 24-hour rhythm of sleep and body temperature are abnormal
4. Normal total sleep time and sleep cycle but 24-hour body temperature rhythm is abnormal

5. Which of the following characteristics indicate that a patient has entered stage N2 sleep?

1. High percentage of Alpha activity
2. Sleep spindles
3. Saw-tooth waves
4. Onset of snoring

6. The wake promoting neurons of dorsal mid brain and pons project to which one of the following areas of the brain?

1. Reticular formation and pineal gland
2. Thalamus and cerebral cortex
3. Anterior and posterior pituitary
4. Visual cortex and posterior cerebellum

7. Irregular R-R rhythm without changes in P, QRS, and T waves is present in which of the following arrhythmias?

1. Premature atrial contraction
2. Third degree AV block
3. Sinus arrhythmia
4. Second degree AV block

8. During a multiple sleep latency test which of the following best defines, sleep onset?

1. Appearance of spindles on EEG
2. Three 30-second epochs of stage N1 or single epoch of other sleep stages
3. First 30-second epoch with more than 15 seconds of cumulative sleep
4. First 30-second epoch when alpha begins to disappear

1. Locus coeruleus (LC)

Locus coeruleus neurons project to cerebral cortex, hippocampus, amygdala, and subcortical areas including thalamus, hypothalamus, and basal forebrain. The activation of noradrenergic cells leads to cortical activation and behavioral arousal. Noradrenergic neurons in the LC are maximally active during active wake behavior, steadily wind down through quiet wakefulness and SWS, and stop firing during REM sleep.

Reference: Neurobiological mechanisms for the regulation of mammalian sleep-wake behavior: reinterpretation of historical evidence and inclusion of contemporary cellular and molecular evidence. *Neurosci Biobehav Rev.* 31: 775-824; 2007.

2. Spike-and-slow wave activity

Transient waveforms inconsistently occur during standard sleep recordings. Given the limited number of EEG electrodes used in polysomnography, these transients are generally benign. Spike-and-slow-wave EEG activity is EEG hallmark of seizure disorder.

Reference: Monitoring and Staging Human Sleep In: Kryger MH, Roth T, Dement WC, eds. *Principles and Practices of Sleep Medicine*, 5th edition

3. Both homeostatic and circadian drives determine the quality of sleep

Sleep is a state of unconsciousness in which the brain is relatively more responsive to internal than external stimuli. The predictable cycling of sleep and reversal of external unresponsiveness distinguish sleep from other states of unconsciousness. The brain becomes less responsive to visual, auditory, and other external stimuli during sleep. Both homeostatic process (S) and circadian process (C) interact with each other to determine the quality of sleep.

Reference: Normal Sleep, Sleep Physiology, and Sleep Deprivation. <http://emedicine.medscape.com/article/1188226-overview#aw2aab6b3>.

4. Normal total sleep time but 24-hour rhythm of sleep and body temperature are abnormal.

This physiology is based on two process model of circadian cycle known as circadian (process C) and homeostatic (process S) systems. The lesion in the SCN abolishes the circadian rhythm of sleep and body temperature but not the homeostatic sleep drive.

5. Sleep spindles

Sleep spindles and K complexes define stage N2 sleep. NREM sleep is characterized by low amplitude mixed frequency background with distinct waveforms that identify the stages of N1 and N2 sleep.

Reference: The Visual Scoring of Sleep in Adults. Journal of Clinical Sleep Medicine. 2007;3(2):121-31.

6. Thalamus and cerebral cortex

Brainstem-ascending reticular-activating system regulates the forebrain wakefulness. The wakefulness network pathways originate from the midbrain reticular formation and are composed mainly of glutamatergic neurons.

One of the pathways projects to the thalamus, and the other projects to the hypothalamus and basal forebrain.

Reference: What Keeps Us Awake: the Neuropharmacology of Stimulants and Wakefulness-Promoting Medications Sleep. 2004; 27:1181-94.

7. Sinus arrhythmia

The Bainbridge reflex may explain sinus arrhythmia that occurs when venous return to the right atrium is increased during inhalation. This results in heart rate acceleration and increased force of contraction in response to venoatrial stretch receptor activation. These compensatory mechanisms lead to an increase in the cardiac output.

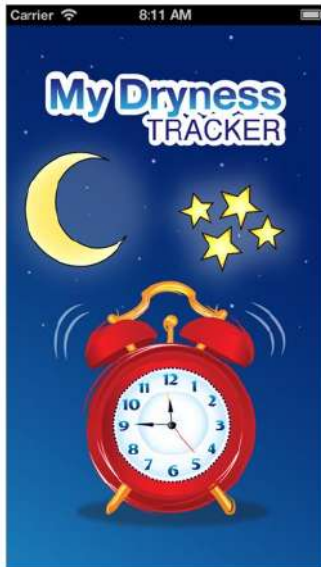
Reference: Asymptomatic Irregular Cardiac Rhythm, Am J Crit Care 429-430 23 2014

8. First 30-second epoch with more than 15 seconds of cumulative sleep

In a multiple sleep latency test (MSLT), sleep onset is the first 30-second epoch in which there is more than 15 seconds of cumulative sleep.

Reference: Standards of Practice Committee of the American Academy of Sleep Medicine. Practice parameters for clinical use of the multiple sleep latency test and the maintenance of wakefulness test. SLEEP 2005; 28(1):113-121.

App for Bedwetting



Bladder diary apps can eliminate disadvantages of pen-and-paper diaries in the management of enuresis. The three best-rated apps currently available are My Dryness Tracker, Bedwetting Tracker, and HapPee Time. There is room for medical associations to collaborate with developers for further app development.

J Pediatr Urol. 2016 Apr;12(2):112.e1-6.

Sleep and Digital App's

Bedwetting Chec...

Tick the boxes which are relevant to you or your child and take this to your doctor.

- ☐ Wetting occurs more than 4-6 times per month and it isn't improving
- ☐ Family history of bedwetting (parents, uncles, aunts, siblings or grandparents)
- ☒ Parent and/or child is motivated to become dry
- ☐ Wetting occurs only at night
- ☐ Wetting occurs during the day as well as at night
- ☐ Wetting occurs soon after falling asleep

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Bedwetting checklist...

QUESTION	YES/NO
Wetting occurs more than 4-6 times per month and it isn't improving	X
Family history of bedwetting (parents, uncles, aunts, siblings or grandparents)	X
Parent and/or child is motivated to become dry	X
Wetting occurs only at night	X
Wetting occurs during the day as well as at night	X
Wetting occurs soon after falling asleep	X
Consistently large wet patches or heavy pull ups which overflow (leak)	X
Deep sleeper - difficulty rousing from sleep	X
Waking up during the night to go to the toilet	X
Urgency to urinate	X
History of urinary tract infections (including infections in the kidneys and/or bladder)	X
Constipation issues (past or present)	X
Wetting is interfering with social and/or school activities	X
Wetting issue is impacting on family life	X

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Alarm therapy pr...

Wet night

19 / Jan / 2013

Why?

☐ Slept through alarm ☐ Woke to alarm but still wet the bed ☐ Alarm didn't go off

What time did you wet the bed?

Size of wet patch

☐ Small ☐ Medium ☐ Large

How many times?

☐ Once ☐ More than once

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Night-time diary

Time going to bed?

Time waking up?

Bed: ☒ Wet ☐ Dry

Size of wet patch

☐ None ☐ Drops ☐ Slightly damp ☐ Wet through underwear ☐ Flooded

Did you wake up to wee?

☐ Yes ☐ No

Volume of wee in toilet (mL)

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This app is designed for both iPhone and iPad.

Compatibility: Requires iOS 5.1.1 or later. Compatible with iPhone, iPad, and iPod touch.



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1. A 20-year-old woman complains of an unpleasant sensation in her limbs associated with an urge to move. Her symptoms worsen when sedentary, improve with movement, and are worse in the evening hours. Which one of the following is the most appropriate next step?

1. Order a polysomnography
2. Order a multiple sleep latency test
3. Order a ferritin level
4. Order a Maintenance of Wakefulness Test

2. Which one of the following statements regarding objective testing for obstructive sleep apnea is true?

1. The severity of OSA doesn't always have to be established in order to make a treatment decision
2. Many clinical models predict severity of OSA, therefore objective testing is not necessary
3. There are two accepted methods of objective testing for OSA include in-laboratory polysomnography and home sleep testing

4. Home sleep test monitoring is indicated in OSA patients with major comorbid conditions

3. Sleep-related hypoventilation/hypoxemic syndromes may be the result of which one of the following causes?

1. Increased response to low oxygen
2. Decreased response to low oxygen
3. Increased response to high oxygen
4. Decreased response to low carbon dioxide

4. A patient with obstructive sleep apnea would have an Epworth Sleepiness Scale score closest to which one of the following ranges?

1. Greater than 18
2. 10 to 12
3. 4 to 6
4. 0 to 1

Board Review Corner- Sleep Medicine

5. One hour after falling asleep, a 3-year-old child has episodes of screaming and crying. Episodes last approximately 15 minutes in duration. Which one of the following sleep disorders is the most consistent with this clinical scenario?

1. Rhythmic movement disorder
2. Seizure disorder
3. Nightmare disorder
4. Sleep terrors

6. Patients with sleep apnea would most likely have elevated levels of which one of the following biomarkers of cardiovascular risk?

1. C-reactive protein
2. Troponin I
3. NT-pro BNP
4. MR-pro ANP

7. The symptoms of posttraumatic sleep disorder would be most similar to which one of the following sleep disorders?

1. Idiopathic hypersomnia
2. Insufficient sleep syndrome
3. Kleine-Levin syndrome
4. Narcolepsy without cataplexy

8. "Overlap syndrome" refers to the interaction between which one of the following sets of disorders?

1. Pulmonary hypertension and obstructive sleep apnea
2. COPD and obstructive sleep apnea
3. Central sleep apnea and asthma
4. Cystic fibrosis and obstructive sleep apnea

9. Which one of the following limb movements would most likely be associated with periodic limb movement disorder?

1. Flexion at the knee
2. Adduction at the hip
3. Extension at the ankle
4. Extension at the elbow

10. A 4-year-old boy with congenital blindness presents for irregular sleep patterns. His parents note that he has periods of good sleep, characterized by continuous nighttime sleep and one short daytime nap, and periods of bad sleep, characterized by progressively worsened difficulty sleep initiation, short nighttime sleep duration, and increased sleepiness during the day with multiple daytime naps. Which one of the following is the best treatment option?

1. Modafinil
2. Zolpidem
3. Melatonin
4. Eszopiclone

1. Order a ferritin level

RLS is associated with ferritin levels less than 50 ng/mL and treatment may consist of replenishing ferritin levels to above 75 ng/mL.

Reference: Restless Legs Syndrome and Periodic Limb Movements during Sleep. In: Kryger MH, Roth T, Dement WC, eds. Principles and Practices of Sleep Medicine, 5th edition

2. There are two accepted methods of objective testing for OSA including in-laboratory polysomnography and home sleep testing

A diagnosis of OSA must be established by an acceptable method before making a treatment decision. There are two accepted methods of objective testing including in-laboratory polysomnography (PSG) and home sleep testing. Home sleep test may be used to diagnose OSA in patients with a high pretest likelihood of moderate to severe OSA. Home sleep testing is not indicated in patients with major comorbid conditions including pulmonary disease, neuromuscular disease, or congestive heart failure, or those suspected of having a comorbid sleep disorder.

Reference: Clinical Guideline for the Evaluation, Management and Long-term Care of Obstructive Sleep Apnea in Adults. Journal of Clinical Sleep Medicine. 2009;5:263-276.

3. Decreased response to low oxygen

Sleep-related hypoventilation/hypoxemic syndromes may be the result of a decreased response to low oxygen or high carbon dioxide

during wakefulness and sleep and are characterized by frequent episodes of shallow breathing that last longer than 10 seconds during sleep.

4. 10 to 12

In the Epworth Sleepiness Scale, normal controls average a 5.9 score, primary snorers average 6.5, patients with obstructive sleep apnea average 11.7, narcoleptics average 17.5, patients with idiopathic hypersomnia average 17.9, and those with insomnia average 2.2.

Reference: A new method for measuring daytime sleepiness: the Epworth sleepiness scale. Sleep. 1991;14: 540-545.

5. Sleep terrors

Sleep terrors occur during the first half of the night. Sleep terrors typically manifest as a loud scream, occasionally followed by motor activity, such as getting out of bed. Though episodes are mostly benign in nature, wandering behaviors can lead to injuries. The patient is often inconsolable during the episode, but rarely remembers the episode the next morning. Common triggers include sleep deprivation (e.g., skipping naps).

Reference: Parasomnias. In: Kryger MH, Roth T, Dement WC, eds. Principles and Practices of Sleep Medicine, 5th edition

6. C-reactive protein

Obstructive sleep apnea can increase the cardiac and vascular risks of hypertension. Patients with sleep apnea, in the absence of hypertension, have elevated biomarkers of cardiovascular risk. C-reactive protein levels may be mildly elevated in men in proportion to the severity of their sleep apnea compared with similarly obese patients without sleep-disordered breathing.

Reference: Hypertension and Obstructive Sleep Apnea. Current Hypertension Reports. 2003;5:380-385.

7. Idiopathic hypersomnia

Posttraumatic hypersomnia is caused by damage to the sleep/wake control mechanisms of the central nervous system. Clinical features of posttraumatic hypersomnia are similar to those of idiopathic hypersomnia apart from the history of a brain injury.

Reference: Excessive sleepiness after brain injury. ACNR. 2005; 5(3):17-18.

8. COPD and obstructive sleep apnea

Reference: Sleep-Related Hypoventilation/Hypoxemic Syndromes. Chest. 2007;131:1936-1948.

9. Flexion at the knee

Periodic limb movement disorder involve the lower extremities, consisting of extension of the big toe and flexion of the ankle, the knee, and the hip.

Reference:

http://my.clevelandclinic.org/disorders/periodic_limb_movement_disorder/hic_periodic_limb_movement_disorder.aspx

10. Melatonin

Blindness associated with loss of light perception can result in irregular sleep/wake cycles due to a "free-running" circadian rhythm, also called non-24-hour sleep-wake circadian rhythm disorder. Because the unentrained circadian periodicity is longer than 24 hours, in the absence of ocular light to entrain, the sleep-wake cycle shifts progressively later around the clock. This is due to dysregulation of melatonin secretion by the pineal gland, which is normally regulated by inputs from the suprachiasmatic nucleus (SCN) in response to signaling via the retinohypothalamic nucleus (RHT) that originates in melanopsin-containing photosensitive ganglion cells in the retina. Administration of exogenous melatonin 1 to 2 hours prior to bedtime can help to increase total sleep time, consolidate sleep, and decrease daytime napping. Sedative hypnotics such as zolpidem and eszopiclone are contraindicated in pediatric populations and, even in adults with free-running circadian rhythms, will not entrain the circadian rhythm.

Reference: Circadian rhythm sleep disorders in the blind and their treatment with melatonin. Sleep Med 2007 ;8 :651-55. Entrainment of free-running circadian rhythms by melatonin in blind people. N Engl J Med 2000;343:1070.

Sleep News in Media

Donald Trump and Wife Sleep in separate rooms: US Media

<https://www.samaa.tv/international/2017/03/donald-trump-and-wife-sleep-in-separate-rooms-us-media/>

1 in 5 young people loose sleep over social media

<https://www.sciencedaily.com/releases/2017/01/170116091419.htm>

Better Sleep can lead to better Sex

<https://www.sciencedaily.com/releases/2017/02/170201092644.htm>

A jury found 50-year-old Joseph Mitchell not guilty of first-degree murder in what was called the "sleepwalking" murder trial. He was also found not guilty of two counts of attempted murder.

<http://abc11.com/news/mitchell-found-not-guilty-in-sleepwalking-murder-trial/553824/>

Apps, social media pushing back sleep time over 1.5 hours

<http://timesofindia.indiatimes.com/india/apps-social-media-pushing-back-sleep-time-over-1-5-hours/articleshow/57696886.cms>

Among adolescents, later weekend bedtimes correlated with smaller brain Grey Matter Volumes in frontal, anterior cingulate, and precuneus cortex regions.

<http://www.nature.com/articles/srep41678>

A Duke University study of people living without electricity or artificial light in a remote farming village in Madagascar finds they get shorter, poorer sleep than people in the U.S. or Europe.

But they seem to make up for lost shuteye with a more regular sleep routine, the researchers report in the *American Journal of Human Biology*.

<https://www.sciencedaily.com/releases/2017/02/170217012515.htm>



Sleep-Engineering: Improve Your Life By Manipulating Your Sleep | Penny Lewis |...

TEDx Talks

1 year ago • 450,928 views

We spend 1/3rd of our life asleep, which suggests it is doing something very important. But, what is all of this for? And why does ...

<https://www.youtube.com/watch?v=9KaMufF0rAY>



My name is Bharat Singh. I am Certified sleep study technician from World Sleep Federation. I started my carrier in sleep field in 2009 from AIIMS Hospital Delhi under Dr. Garima Shukla (Professor of Neurology, AIIMS, New Delhi).

I am doing sleep studies (diagnostic, split night studies, Titration studies, MSLT and actigraphy studies) manual sleep scoring, EEG (Routine & Video EEG).

Ph.No: (+91) 9873975578

Which Respiratory parameters are measured during a routine Sleep Study?

Following Respiratory parameters are recorded during sleep study- Airflow, Respiratory effort, Oxygen saturation, snoring and CO2 levels in children and suspected Hypoventilating patients.

Which are the 5 types of sensors that can be used to measure airflow during diagnostic sleep study? How do we measure airflow during titration study?

5 sensors that can be used to record airflow during diagnostic study are- Thermistor, Thermocouple, Pressure Transducer, expired CO2 sensors and Pneumotachography.

AASM recommends Thermistor and pressure transducer.

We should measure airflow by pap device flow signal during titration study and should not place thermistor or pressure transducer under the mask.

During level 1 diagnostic sleep study airflow is recorded using both thermistor and pressure transducer. In Home Sleep Testing (HST) airflow can be recorded using either thermistor or pressure transducer.

What is the difference in technology between Thermistor and Thermocouple?

A **Thermistor** has a series of resistors whose values are changed by the temperature changes around them. These value changes affect a current that is generated either by the recording system into which they are plugged or by inline batteries.

A **thermocouple** comprises two wires made from dissimilar metals. A temperature change at the junction of these two metals will generate an electrical signal because of their metallurgical properties. This is accomplished using specific metals. Different metals are used to measure different temperature ranges resulting in different Types of thermocouples.

What is the principle of pressure transducer?

It measures pressure fluctuations at the nares as a surrogate of airflow. The square root of pressure curves is directly proportional to flow.

Which sensors are recommended to define Apnea and Hypopnea during a diagnostic sleep study?

The oronasal thermal sensor *is the* recommended sensor for the identification of **apneas** and the nasal pressure transducer is the recommended sensor for the identification of **Hypopnea** during diagnostic sleep study.

Which sensors are recommended to define Apnea and Hypopnea during a Titration sleep study?

Pap device flow signal sensors are recommended in titration sleep study to define Apnea and Hypopnea.

Name the alternate sensors used to define Apnea and Hypopnea.

Respiratory event	Alternate sensor
Apnea	Nasal pressure transducer RIP Sum RIP Flow PVDF Sum
Hypopnea	End Tidal CO2 in children Oronasal thermal sensor RIP Sum RIP Flow PVDF Sum

What is the principal of pneumotachograph?

Pneumotachographs measure the flow according to the Venturi effect. The Venturi effect is the phenomenon that occurs when a flowing fluid is forced through a narrow section, resulting in a pressure decrease and a velocity increase.

There are 2 types of pneumotachographs: Fleish and Lilly. The Lilly type measures the difference in pressure over before and after a membrane with known resistance. Fleisch types use a series of parallel capillaries. It includes a tube for connection on CPAP/BiPAP devices to analyse the quantitative breathing and leakage flow.

Name 4 types of sensors that can be used to measure Respiratory effort? Which is the gold standard for measuring respiratory effort?

4 types of sensors that can be used to measure respiratory effort are Esophageal pressure transducer, Respiratory inductance plethysmography (RIP) belts, Polyvinylidene fluoride (PVDF) belts and Intercostal/Diaphragm EMG.

We can use piezoelectric belts as well to measure respiratory effort but AASM neither recommends it nor contradicts its usage. Esophageal pressure transducer is the gold standard for measuring respiratory effort.

During level 1 diagnostic sleep study respiratory effort is recorded using both abdominal and chest belts. In HST one belt either chest or abdominal can be used.

What is the difference in technology used by Piezoelectric and RIP belts?

Piezoelectric belts- Piezoelectric belts contain a piezo-electric device that responds linearly to changes in length. It measures changes in thoracic or abdominal circumference during respiration. These measurements can indicate inhalation, expiration and breathing strength and can be used to derive breathing rate. The transducer may be used to characterize breathing patterns. The transducer is a solid-state device that requires no excitation. It is comfortable to wear, rugged, reliable and washable.

RIP belts- RIP belts have a wire running through the length of belts in a zigzag fashion. When chest and abdomen expand the inductance of the wire changes which is proportional to the cross sectional area belt encloses. This change in inductance is recorded as signal. To ensure quality signals, RIP belts should be placed at the standard locations: near the nipple line (or mid-chest) and just above the belly button.

Where do we place surface electrodes to measure Diaphragm and intercostals EMG?

To record the activity of the diaphragm, Surface electrodes are placed in the seventh or eighth intercostals space on the right side of the body at the midclavicular line, and for the external intercostals muscles, electrodes were placed in the 2nd or 3rd intercostal space at the midclavicular line.

Which technology is used to record snoring?

Piezo sensor and microphone

Which two wavelengths of light are used by pulse oximeter to measure SpO2?

660 nm (red) and 940 nm (infrared) wavelengths are used to measure SpO2 by pulse oximeter.

What should be average sampling time of pulse oximeter used during sleep study?

Maximum averaging time should be 3 sec at a heart rate of 80bpm

What are the different ways to measure CO2 levels during diagnostic and titration Sleep Study?

Arterial blood gases (ABG), Transcutaneous CO2 (TcCO2) monitoring and End tidal CO2 (EtCO2) monitoring can be used to measure CO2 levels during diagnostic sleep study. During titration sleep study we can use ABG or TcCO2 for monitoring CO2 levels.

Respiratory System During Sleep

How is respiration controlled during Wakefulness? How is the respiratory control different during Sleep?

Respiration is controlled by both metabolic (pH, pCO₂, pO₂) and behavioral control during Wakefulness.

Only metabolic control is present during Sleep

How does Hypoxic and hypercapnic Ventilatory response change during Sleep as compared to Wakefulness?

↓ in NREM Sleep and ↓↓ during REM Sleep (compared to wakefulness)

Response of ventilation during sleep

- O₂: Wake>N3>N2>REM
- CO₂: Wake>N3>N2>REM

How does Hypoxic Ventilatory Response differ during Sleep in Male and Female?

In women, Hypoxic ventilatory response is similar in wake and NREM

In men, there is a greater reduction in Hypoxic ventilatory response from wake to NREM

How does SaO₂, PaO₂ and PaCO₂ change during Sleep compared to Wakefulness?

Compared to wakefulness PaO₂ decrease by 2-12 mmHg, SaO₂ decrease by 2% and PaCO₂ increase by 2-8mmHg

What happens to muscle tone of upper airway and respiratory muscles?

Upper airway Dilator muscle tone:

- Decrease during NREM Sleep compared to wake
- Further decrease during REM Sleep

Ventilatory response to added inspiratory resistance: decrease during Sleep

Activity of accessory muscle of respiration: decrease during NREM Sleep and further decrease in REM Sleep

Diaphragm tone is unaffected during NREM and REM Sleep.

How does Tidal Volume and Minute ventilation change during Sleep as compared to wakefulness?

Tidal volume and minute ventilation: decrease during sleep compared to wake

Sleep Secrets

SLEEPCON 2017

Sleep Events In India



Sleepcon 2017, an Annual International Conference of Indian Sleep Disorders Association was hosted by Sleep Disorders Centre, PSG Institute of Pulmonary Medicine, PSG Hospitals, Coimbatore, India on 7th – 9th April 2017.

The organizing Committee

Patron : Shri. L. Gopalakrishnan	
Prof. J.C. Suri Advisor	Dr. N. Ramakrishnan Chair Person
Dr. RM.PL. Ramanathan Organizing Secretary	Dr. R. Karthykeyan Joint Secretary

The participants included 225 delegates from various parts of the country and 45 faculties, including 4 international faculties.

There were 4 pre conference workshops on 7th April 2017: **Dental Sleep Medicine; Sleep Disordered Breathing; Insomnia & Hypersomnia; Polysomnography – Technical Aspects.**

The 4th workshop was for technologists, where Polysomnography Technical Aspects was the topic, a new introduction in this ISDA Annual Conference.

The ISDA Oration topic: **"The Brain in Sleep: glimpses into the abyss of Hypnos"** was given by **Dr. Garima Shukla** from AIIMS, New Delhi.

SLEEPCON 2017

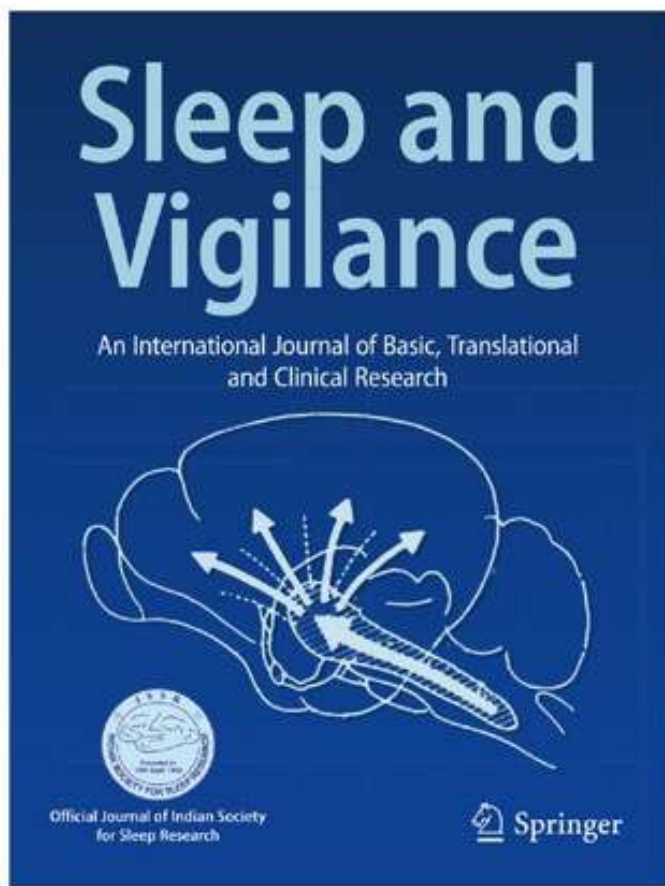
The **PROCON** sessions were very interesting and well appreciated by the audience.

As a part of creating public awareness a short video competition was introduced newly and the Viscom students of Coimbatore region took part. The title of video was “**Sleep recharges you**”. Out of the entries, first three were given Rs.15,000/-, Rs. 10,000 & Rs.7,500/-.

Free paper presentation conducted during conference on 9th April 2017. First prize of Rs.5,000/- was given to **Dr. Ragasudha Botta**, Department of Clinical Neurosciences, National Institute of Mental Health & Neuro Sciences (NIMHANS), Bangaluru. Titled “**Assessment of sleep spindle density among genetically positive SCA1, SCA2 & SCA3 patients**”



Sleep Events In India



An International Journal of
Basic, Translational and
Clinical Research

Editors-in-Chief: R. Gupta;
S.R. Pandi-Perumal

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ISSR Journal

A global podium for biomedical and clinical researchers to present and discuss their work

Covers research on the nature and definitions of sleep, as well as sleep medicine and disorders and more

Published in collaboration and with editorial support from the Indian Society for Sleep Research (ISSR)

This journal is a forum for biomedical and clinical researchers to present research articles, case reports, clinical investigations, review articles and short communications. Covers sleep at the molecular and genetic level, imaging, medical topics and more.

On the homepage of Sleep and Vigilance at springer.com you can

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ISSR Membership

The Indian Society of Sleep Research (ISSR) works to protect sleep health and promote high quality patient care. These goals are dependent on the support of the professionals working in the field. Membership with the ISSR funds the activities executed for the benefit of all who practice sleep medicine or conduct sleep research.

The ISSR works to improve sleep health through advocacy, education, and strategic research and practice standards.

The Society will have Life members, Regular members and Corresponding members. In addition to membership the members will receive subscription to-

1. Journal of Sleep and Biological Rhythm
2. "Sleep and Vigilance" Journal
3. ISSR News letter
4. ISSR Literature Updates

We encourage you to become member of ISSR and members to renew their membership so that we have your support in continuation of the field of Sleep Medicine.

For more details on membership please visit www.issr.in

Professional Sleep Societies and Web links

American Academy of Sleep Medicine (AASM)
American Association of Sleep Technologist (AAST)
American Board of Sleep Medicine (ABSM)
World Association of Sleep Medicine (WASM)
World Sleep Federation (WSF)
European Sleep Research Society (ESRS)
Australasian Sleep Association
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Board of Registered Polysomnography Technologists (BRPT)
World Sleep Society

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www.worldsleepsociety.org



Letter to the Editor:

Dr. Tripat Deep Singh
MBBS, MD (Physiology), RPSGT, RST
International Sleep Specialist
(World Sleep Federation Program)

Our readers are invited to write to the editor regarding their views on the published material and also to contribute interesting content or updates in the field.

Email us on sleepwatching@yahoo.com.sg
