

SleepWatching India

Indian Society for Sleep Research (ISSR) Newsletter Issue 8

1/11/2018

From Editor's desk Pg-2	Sleep tips Pg-10	Board Review Corner- Sleep Medicine Pg:18-20
ISSR Activities Pg-3	Sleep labs in India Pg-11	Sleep and Digital App's Pg: 22
Sleepy Calendar Pg-4	Cultural aspects of Sleep Pg-12	PSG Secrets Pg:23-24
Sleep Events in India Pg-5	Board Review Corner- Sleep Technology Pg: 13-15	Personal Opinions of SleepWatcher P: 25
ISSR activities in 2018 Pg-6-7	ISSR members in news Pg-16	World Sleep Day 2018 Awards Pg-26
Sleeplabs in ASEAN region Pg-8-9	Sleep News in Media Pg:17	ISSR-WSF Certified Sleep physicians in India Pg-27

Message from President ISSR



Dear Friends,

It gives me immense pleasure in releasing the 8th Issue of SleepWatching India. Dr Tripat has brought out another wonderful issue with new colours besides regular features. The issue is as colorful as Dipawali. Inspired by recent cover issue on Sleep in 'National Geographic', he has added a new feature "Cultural aspects of Sleep".

Please find time to read Dr Bindu's feature article in recently published cover article on Sleep in 'Week' magazine. You will find a section on news items on sleep in media. Also he has brought a section on sleep apps in this issue. He has beautifully crafted past sleep events organised in 2018 and the new sleepy calendar for the year 2019. Please mark your diaries.

After the merger of the World Sleep Federation and the World Association of Sleep Medicine, the ISSR was first to conduct the World Sleep Society First International Sleep Specialist Certification Examination on October 21, 2018. Those who are interested for the next examination please express your interest.

We look forward to the next issue of SleepWatching India.

I take this opportunity to wish you all a prosperous and bright **Dipawali**

Sleep Well. Sleep on Time.

Dr. Hrudananda Mallick



Executive Committee

President

Dr. H.N. Mallick

Vice President

Dr. Manvir Bhatia

General Secretary

Dr. Kamalesh K Gulia

Treasurer

Dr. Apar Jindal

Executive Members

Dr. Deepak Shrivastava

Dr. Manjari Tripathi

Dr. Bindu M Kutty

Dr. Ravi Gupta

Lt. Col Dr. Karuna Datta

Newsletter Editor

Dr. Tripat Deep Singh



2018 was a great year for Sleep Science in India. 15 different events covering various aspects of Sleep Science were held all over India from Dec 2017 to Dec 2018. The details of the events are given in the section **“Sleep Events in India”**.

This year two World Sleep day activities from India won the **“Distinguished Activity”** award given by World Sleep Society. Details are given in the section **“World Sleep Day 2018 Awards”**.

I am starting a new corner **“Cultural aspects of Sleep”** in this issue. This section will cover how sleep practices differ in different cultures across the globe.

One Sleep lab details are provided in the section **“Sleep Labs in India”**. The sleep lab is located in Dept. of Physiology KGMC Lucknow. I am thankful to **Dr. Sunita Tiwari** for submitting the details of the Sleep lab.

Sleep lab from Oriental Melaka Medical Centre, Malaysia is featured in the section **“Sleep Labs in ASEAN Region”**. Dr. Rashidah Yasin heads this lab.

Sleep Technologist **Ms. Ck Divya** shares her personal experiences and opinions on Sleep Technology as a profession in the section **“Personal Opinions of SleepWatcher”**.

Dr. Deepak Srivastava has contributed 10 questions with answers for **“Board Review-Sleep Technology”** and 10 questions with answers for **“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. Awnish Singh discusses the must know concepts about **“Epochs of wakefulness and Stage N1 sleep”** in the section of **“PSG Secrets”**.

In this issue, the **“Sleep and Digital App’s”** section highlight about useful app for differentiating alert from sleepy states. The highlighted app is **“Sleep-2-Peak”**.

Read some interesting news on sleep in section **“Sleep in Media”** like **“Dream Genes”**, **“naps and false memories”**, **“Banking sleep”** and **“Not sleeping with contact lens”**.

The magazine **“National Geographic”** and **“The WEEK”** has dedicated the August and September 2018 issue respectively to **“Science of Sleep”**. This highlights that Sleep is being recognized as an important field by different sections of the society

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. Put **“Sleepy Calendar 2019”** on your desks. Enjoy reading, **Happy Dipawali and Happy New Year!!**

Sleep Well. Sleep on Time.
Dr. Tripat Deep Singh

ISSR Activities

2016	2017	2018	2019
WSF Exam 17- July 2016, Online Exam No. Of Applicants= 6	WSF Exam 11 June 2017 AIIMS Delhi, Online Exam	India Sleep 2018 Staging Together: National Sleep Medicine Course (NSMC) National Sleep Technology Course (NSTC) ISSR Annual Conference 21-23 Sep 2018	7-8 Sep 2019 NSMC, Chennai
National Sleep Medicine Course (NSMC) 2-4 Dec 2016 Dehradun, Uttarakhand India	National Sleep Medicine Course (NSMC) 21 Sep 2017, Goa	Advanced Sleep Technology Workshop 7 April 2018, AIIMS Delhi	14-19 April 2019, NSTC, AIIMS New Delhi
5 th National Sleep Technology Course (NSTC) 29-30 Nov 2016 AIIMS Delhi, India	6 th National Sleep Technology Course (NSTC) 20 Sep 2017, Goa	IBSM exam for Sleep Technologist 22 Sep 2018	18 April 2019, IBSM exam for Sleep Technologist, AIIMS New Delhi
'IBSM exam for Sleep Technologist 31 July 2016 AIIMS Delhi No. Of Applicants= 3	IBSM exam for Sleep Technologist 11 June 2017 AIIMS Delhi	World Sleep Society Sleep Specialist Exam, 21 st Oct 2018	World Sleep Society Sleep Specialist Exam Date of exam will be announced on the ISSR website WWW.ISSR.IN
WSF Exam 17- July 2016, Online Exam No. Of Applicants= 6	Silver Jubilee Congress of Indian Society for Sleep Research 22-23 Sep 2017, Goa		
National Sleep Medicine Course (NSMC) 2-4 Dec 2016 Dehradun, Uttarakhand India	Started publication "Sleep Forensics"		

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

Sleepy Calendar 2019

February

1-4: Advances in Sleep and Circadian Science, Florida US

9-10: 3rd International Sleep Update 2019, New Delhi, India

14-17: MEDINSPIRE "Sleepmatters" D.Y.Patil University Navi Mumbai, India

15-17: Sleep Medicine Trends 2019, California, US

July

XX: Indonesia Sleep Meeting

18-21: Malaysian Thoracic Society Annual Congress, Kuala Lumpur Malaysia

August

21-25: Singhealth Duke NUS Sleep Centre Singapore Sleep Conference

23-25: Sleep 2019, Kuala Lumpur Malaysia

March

8: Pediatric Sleep Medicine Workshop, KK Hospital, Singapore

11-14: Biological Rhythms Symposium, Indian Society of Chronobiology, Meerut, UP India

15: World Sleep Day

22-23: Philippine Sleep Society Conference, Baguio, Philippines

29-31: IASSACON, PGI Chandigarh, India

October

11-13: ICSD, SEAASM, Nagpur India

17-19: Sleep Downunder, Sydney, Australia

19-23: Chest Annual Meeting, New Orleans, US

April

10-12: Chest Congress, Bangkok, Thailand

11-13: Sleep and Breathing, Marseille, France

14-19: National Sleep Technology Course (NSTC), AIIMS, Delhi, India

19-21: SLEEPCON, Delhi

25-26: 1st SARC Sleep Workshop, Singapore

September

7-8: National Sleep Medicine Course (NSMC), Chennai, India

9-13: 24th International Symposium on Shift Work and Working Time, Idaho US

20-25: World Sleep, Vancouver, Canada

28 Sep-2nd Oct: ERS International Congress, Madrid, Spain

May

10-11: 10th International Surgical Sleep Society Meeting New York, US

17-22: ATS Sandiego, Dallas, Texas, US

June

8-12: APSS Sleep Baltimore, San Antonio US

27-28: Japanese Society of Sleep Research Meeting

November

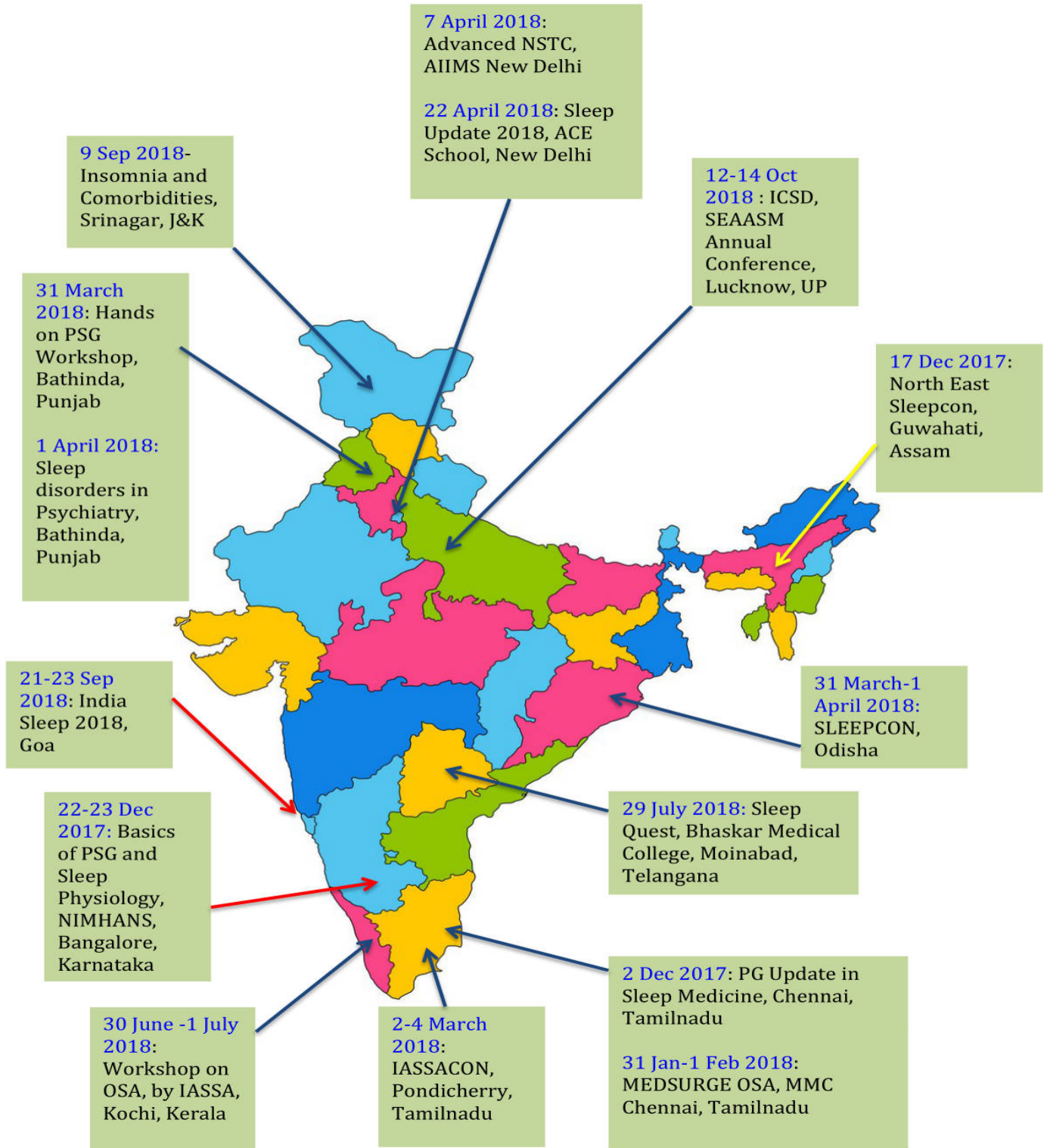
9: ASEAN Sleep Congress, Vietnam

14-17: APSR, Hanoi, Vietnam



Sleep Events in India

Dec 2017-Dec 2018



APPI Young Investigator Development Workshop



The 'First Association of Physiology and Pharmacology of India (APPI) Young Investigator Development Workshop' was organized by Dr. H.N. Mallick, APPI Finance Secretary on 21st September, 2018 at International Centre Goa, Panaji, under the aegis of Indian Society for Sleep Research.

This programme is an initiative of Dr. S.K. Singh, philanthropist and eminent professor in Physiology from Gujarat. The theme of the workshop was "Discovering the mystery of sleep". Thirty-five MBBS students from various medical colleges of India were selected to participate in the workshop.

Dr. Ramji Singh, Dr. V. Mohan Kumar, Dr. Deepak Shrivastava, Dr. Karuna Datta, Dr. Kripesh R. Sarmah, Dr. Apar Jindal, Dr. Ravi Gupta, Dr. H.N. Mallick, Dr. Kamalesh K. Gulia, and Dr. S.K. Sikdar were the faculty in the workshop. Topics covered in the workshop were (i) "Introduction to sleep and sleep disorders", (ii) Investigating human sleep disorders" and (iii) "Research methods in sleep sciences." The programme was very well accepted and appreciated by the students. There was a demand to continue this programme every year to sensitize young Medical professionals to scientific research.

India Sleep 2018



India Sleep 2018 Faculty

India Sleep 2018 was an academic feast held from **21-23 September 2018** at International Centre Goa, Panaji Goa. It had various courses and over 125 participants from varying fields. They were sleep technologists, sleep medicine enthusiasts from pulmonary medicine, psychiatry, neurology, physiology, etc., sleep scientists, young budding medical undergraduates and sleep entrepreneurs.



India Sleep witnessed one day National Sleep Technology course, two days National Sleep Medicine Course and a day of young investigator forum. A skill station workshops consisting of five

stations tailor made for all three courses was conducted by sleep medicine faculty to foster better interaction and promote sleep with better understanding at a comprehensive level.

Poster presentation and free paper sessions were done on the last day and were received by much enthusiasm. Jam packed audience and active interactions sessions throughout proved that India Sleep 2018 meeting was where science, technology and medicine met.

Sleep Lab in Oriental Melaka Medical Centre, Melaka, Malaysia



When was the sleep lab started?

Sleep laboratory at Oriental Melaka Straits Medical Center was launched on 15 June 2016

What is the waiting time in your sleep lab?

Waiting time in our lab is about 2 weeks

Are you doing any home sleep tests? If yes, how many per year?

We are doing home sleep tests. We do 15HSTs per year

How many beds does the sleep lab have for level 1 sleep study?

We currently have one bed for level 1 sleep studies

What type of diagnostic studies are done in the sleep center?

We do following type of studies- Baseline PSG, Split night PSG, CPAP/BPAP/ASV titration, MSLT and MWT

What are the educational/training opportunities available for doctors and technicians at your sleep center, especially for candidates from other countries?

We do offer candidates a training opportunity who wish to experience first-hand training in Sleep Medicine.

How many sleep techs are employed at the sleep center? What are daytime and nighttime duties?

We have 3 full time sleep technicians. The full time sleep technicians conduct sleep studies two night per week. During the day, they interpret sleep studies, conduct MSLT, assist in sleep clinics and provide services for patient's who are using CPAP/BiPAP.

Sleep Labs in ASEAN

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

We conduct about 45 cases for full night polysomnography, 51 cases of Split night studies, 6 cases of PAP Titration studies and 1 case of MSLT in 1yr.

What are the contact details of your sleep center-address, phone number, email and website?

We are located at Oriental Melaka Straits Medical Centre, Pusat Perubatan

Klebang, 75200 Melaka.

Phone Number +606-3158843

Website: www.orientalmedical.com.my



**Team Photo- Standing From Left to Right: Ms. Liya, Ms. Shahira, Mr. Muslim, Ms. Nurul and Ms. Carol.
Sitting: Dr. Rashidah Yasin**

Sleep Labs in ASEAN

DO YOU GET ENOUGH SLEEP?



1 IN 3

Adults don't get enough sleep.

Adults need 7+ hours of sleep per night.

7
OR MORE



Lack of sleep is linked to several chronic diseases and conditions, including:



DIABETES



HEART DISEASE

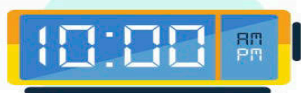


OBESITY



DEPRESSION

Tips for Good Sleep



Go to bed and get up at the same time each day, including weekends.



Keep bedrooms quiet, dark, and a comfortable temperature.



Remove electronic devices from the bedroom.



Avoid large meals, caffeine, and alcohol before bedtime.



Being active during the day can help you fall asleep at night.

Learn more about good sleep habits at www.cdc.gov/sleep



Centers for Disease Control and Prevention
National Center for Chronic Disease Prevention and Health Promotion

NATIONAL CENTER FOR
CHRONIC DISEASE PREVENTION AND HEALTH PROMOTION
@CDCChronic | www.cdc.gov/chronicdisease

Sleep Lab, Dept. of Physiology, KGMC Lucknow



Team Photo- From Left to Right: Mr. Rajat Kashyap, Dr. Jagdish Narayan, Prof. Sunita Tiwari and Dr. Anil Kumar Gangwar

When was the sleep lab started?

Sleep Lab in Department of Physiology, King George's Medical University, Lucknow was established in 2014-15

How many beds does the sleep lab have for level 1 sleep study?

Sleep lab have 1 bed for level 1 sleep studies

What type of diagnostic studies are done in the sleep center?

We do baseline PSG for research purpose

What are the educational/training opportunities available for doctors and technicians at your sleep center, especially for candidates from other countries?

Research opportunities are available in the field of sleep physiology and sleep medicine for PG students and PhD/ MD-PhD scholars

How many sleep techs are employed at the sleep center? What are daytime and nighttime duties?

We have 1 full time sleep tech

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

We have conducted approximately 200 level 1 baseline PSG studies for research in sleep physiology and sleep medicine

What are the contact details of your sleep center-address, phone number, email and website?

Department of Physiology
King George's Medical University
Chowk, Lucknow, U.P. 226003
Phone: 05222257542
Mail i/d: physiology@kgmcindia.edu

Sleep Labs in India

Sleeping beds for babies in India

In India people of different socio-economic background have devised different ways to put their babies to sleep.



Cultural Aspects of Sleep



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

Contact Details:

Deepak Shrivastava, MD
500 West Hospital Road
French Camp, CA 95231
209-468-6624 (Office)
209-986-3663 (Cellular), Email: dshrivastava@comcast.net

1. In humans, sleep deprivation causes which of the following?

- a. No changes in circulating levels of leptin
- b. Increases the circulating levels of leptin
- c. Decreases the circulating level of leptin
- d. Variable changes in the circulating levels of leptin

2. Which of the following conditions are most likely to contribute to mixed frequency artifact?

- a. Incorrect filter settings
- b. Inaccurate measurements
- c. Poor quality electrode application
- d. Patient movement

3. A broken wire or loose electrical connection in any channel will most probably result in which of the following?

- a. 60 Hz or mixed Fast frequency artifact
- b. Slow frequency artifact
- c. A flatline tracing
- d. An attenuation of the recording

4. Which of the following conditions are most likely to cause slow frequency artifact in the EEG or eye channels?

- a. Muscle tension
- b. Sweat
- c. Incorrect placement of the reference electrodes
- d. A and C are correct

5. Which area of the brain promotes non-REM sleep?

- a. Basal forebrain
- b. Reticular formation
- c. Pontine tegmentum
- d. Preoptic area

6. Which of the following conditions might be a concern for a falsely normal or elevated SPO2

- a. Red nail polish
- b. Sickle cell anemia crisis with a vasoocclusive episode
- c. Heart failure patient
- d. Hyperbilirubinemia

Board Review Corner- Sleep Technology

7. Which of the following neurons respond to extracellular CO₂ increases?

- a. Histaminergic
- b. Serotonergic
- c. Dopaminergic
- d. Acetylcholinergic

8. Which one of these is secreted by the tuberomammillary nucleus?

- a. Orexin
- b. Muramyl
- c. Histamine
- d. Serotonin

9. The reduction in the rest of the rated sleep onset is due to decreased sensitivity to which of the following?

- a. Basic respiratory rhythm generators
- b. Heart rate
- c. Carbon dioxide levels
- d. Upper airway resistance

10. The bio potentials that are recorded during electroencephalography (EEG) are the result of which of the following?

- a. Enzymatic degradation
- b. Thermal consequences of metabolic activity
- c. Ion movement across the membrane
- d. DNA to RNA transcription

1. c

Rationale: Sleep duration may be an important regulator of body weight and metabolism. An association between short habitual sleep time and increased body mass index (BMI) has been reported in large population samples. Subjects with short sleep had reduced leptin and elevated ghrelin. These differences in leptin and ghrelin are likely to increase appetite, possibly explaining the increased BMI observed with short sleep duration. In Western societies, where chronic sleep restriction is common and food is widely available, changes in appetite regulatory hormones with sleep curtailment may contribute to obesity.

PLoS Med. 2004 Dec; 1(3): e62

2. c

The all-night sleep recording, Synapse media Inc.

3. a

The all-night sleep recording, Synapse media Inc.

4. b

The all-night sleep recording, Synapse media Inc.

5. d

Rationale: The Pre- optic area is divided into ventral Pre-optic area VLPO and median Pre-optic area MPO. The nuance of the VLPO initiative non-REM sleep and those of the M and PO maintain non-REM sleep. These nuclei are rich in neurons that contain inhibitory neurotransmitters GABA and Glutamate. Lesions of the Pre-optic area produce light and fragmented sleep.

Sleep. 2011; 34:845 – 858

6. b

Rationale: Sickle cell anemia crisis during vasoocclusive episode can result in a falsely normal or elevated SPO2 because some individuals with sickle cell disease may have elevated carboxy hemoglobin (COHb) due to the metabolism of heme to bilirubin and carbon monoxide (CO).

Am. J Emerg Med 1996; 14(1): 16

7. b

Rationale: Serotoninergic neurons in the ventral lateral surface of the Medulla and medullary pontine nucleus are central chemoreceptors that send CO2 levels. Medullary serotonergic neurons project to primary respiratory nuclei i.e. nucleus tractus solitarius, nucleus ambiguus, the Botzinger complex, Phrenic motor nucleus, and hypoglossal motor nucleus. Serotonergic neurons respond to extracellular CO2 increases or pH declines and controlling ventilation to maintain blood PCO2 within the normal physiologic range.

Nat Rev Neurosci. 2004; 5:449 – 461

8. c

Rationale: Tuberomammillary nucleus is located within the posterior third of the hypothalamus. It is the only source of histamine pathways in the human brain. It is involved with control of arousal, learning, memory, sleep and energy balance.

Molecular neuropharmacology: A foundation for clinical neuroscience second edition New York: McGraw – Hill medical PP. 175 – 176

9. c

10. c

Dr. Bindu M Kutty featured in the cover story “When you can’t sleep or sleep too much” of the “The WEEK” magazine Sep 2018 issue.



Dr. Garima Shukla was awarded by Association of American Physicians of Indian Origin-Sleep (AAPIOS) for “Extraordinary Contribution to Sleep Medicine in India”



ISSR Members in News

Sleep News in Media

“Dream Genes” - Chrm 1 and Chrm 3 genes are essential for occurrence of REM Sleep

<https://www.livescience.com/63459-dream-genes-rem-sleep.html>

Please don't sleep in contact lenses

<https://www.livescience.com/63354-sleeping-contact-lens-infection.html>

“Banking” sleep could help athletes go the extra mile

<https://globalnews.ca/news/4004475/research-shows-banking-sleep-can-help-athletes-go-the-extra-mile/>

Just one night of sleep loss may add to weight gain and muscle loss

<https://www.livescience.com/63404-poor-sleep-weight-gain-muscle-loss.html>

Naps can make our brains “remember things that never happened” (False Memories)

<https://www.livescience.com/62460-naps-brain-false-memories.html>

Contagious loneliness could follow poor sleep

<https://www.livescience.com/63331-poor-sleep-loneliness-contagious.html>

Cyan color-between green and blue- is the hidden factor in promoting or preventing sleep

https://www.bbc.com/news/education-44565320?intlink_from_url=https://www.bbc.com/news/topics/c50znx8v441t/sleep&link_location=live-reporting-story

Writing a to-do list before bed could help you to sleep

<https://www.livescience.com/61422-journal-writing-sleep-better.html>

Sleeping more may curb sugar cravings

<https://www.livescience.com/61381-sleep-more-eat-better.html>

Too afraid to sleep: India's homeless women suffer as cities expand

<https://www.voanews.com/a/india-homeless-women-suffer-cities-expand/4528693.html>

Board Review Corner- Sleep Medicine

1. As compared to younger individuals, which one of the following statements is correct regarding obstructive sleep apnea in individuals over the age of 60?

- A) Associated with higher mortality
- B) Stronger association with obesity
- C) More likely to tolerate oral appliance therapy
- D) Oxygen desaturations are less severe

2. A 50-year-old male who presents with snoring and daytime sleepiness (Epworth = 14) is recently diagnosed with severe OSA (AHI = 35) on an HST and started on CPAP therapy at 10 cm H₂O. When he returns for his initial 3-month office visit, which one of the following outcomes is CPAP therapy most likely to improve?

- A) Blood pressure
- B) Atrial fibrillation
- C) Daytime sleepiness
- D) Glucose control

3. Which one of the following has been associated with lower adherence to PAP therapy?

- A) Severe OSA (AHI > 30)
- B) Excessive daytime symptoms
- C) Pressures < 12 cm H₂O
- D) Lower socioeconomic status

Sleep. 2009 Apr 1; 32(4): 545–552.

4. Which one of the following interventions has been associated with improved PAP adherence?

- A) AutoPAP
- B) Eszopiclone
- C) Nasal steroids
- D) PSG titration

5) The chemoreceptors for oxygen are located in which one of the following structures?

- A) Pons
- B) Carotid body
- C) Medulla
- D) Right atrium

6. According to the most recent AASM Practice Parameter recommendations, treatment with AutoCPAP would be best indicated for which one of the following patients?

- A) Uncomplicated moderate to severe OSAS
- B) REM-related OSAS
- C) COPD and chronic lung disease
- D) Obesity Hypoventilation Syndrome

7. Which one of the following statements is correct regarding oral appliance (OA) therapy for the treatment of OSA?

- A) OA therapy results in improvements in blood pressure similar to CPAP
- B) OA therapy reduces the AHI better than CPAP
- C) OA therapy improves oxygenation better than CPAP
- D) CPAP improves daytime sleepiness better than OA therapy

8) Which one of the following statements regarding high altitude periodic breathing is correct?

- A) Occurs predominantly in REM sleep
- B) Typical cycle length is > 60 seconds
- C) Primary mechanism is hypoxemia
- D) CPAP is the best treatment

9. Which of the following is true of narcotic-induced central apnea?

- A) Independent of dose of narcotic
- B) Generally, resolves with ongoing narcotic therapy
- C) ASV bi-level therapy is the treatment of choice
- D) Most commonly associated with methadone

10) Which of the following breathing disorders is usually less severe in rapid eye movement (REM) sleep compared to non-rapid eye movement (NREM) sleep?

- A) Sleep-related hypoxemia in COPD
- B) Obstructive Sleep Apnea
- C) Cheyne Stokes Breathing
- D) Hypoxemia in Pulmonary Hypertension

1.d

Rationale: The severity of OSA, as indicated by both minimum Sa_{O_2} and AHI, was found to decrease with age (i.e., the lowest minimum Sa_{O_2} and the highest AHI were observed in the young). Further, the rate of change between severity of OSA and age increased with the threshold of OSA in a dose-response manner. For example, the slope of the association between minimum Sa_{O_2} and age for subjects without sleep apnea ($\text{AHI} < 5$) was -0.08 ($-0.11, -0.05$) ($p < 0.001$), demonstrating a slightly decreasing minimum Sa_{O_2} with age (Figure 2). In other words, as men without OSA get older, they tend to desaturate more. In contrast, the slope of the minimum Sa_{O_2} -age association for subjects with mild sleep apnea ($\text{AHI} \geq 5$) was 0.04 ($-0.06, 0.15$) ($p = 0.2$), demonstrating a significant increase in minimum Sa_{O_2} with age as compared with subjects without sleep apnea ($p < 0.001$). In other words, younger men with sleep apnea tend to desaturate more than men without sleep apnea. Further, the relationship between age and minimum Sa_{O_2} became increasingly positive and significant as the apnea threshold was increased. Specifically, the slope for $\text{AHI} \geq 10$ was 0.13 ($0.002, 0.26$) ($p = 0.001$), whereas the slope for $\text{AHI} \geq 20$ was 0.25 ($0.05, 0.45$) ($p < 0.001$).

Am J Respir Crit Care Med 1998;157:144–148.

2. c

Rationale: Patel and colleagues performed a meta-analysis showing that CPAP reduced the Epworth Sleepiness Scale (ESS) score an average of 2.9 points more than did placebo ($P < 0.001$) in patients with OSA. Patients with moderate to severe OSA had a greater fall in ESS than did those with mild OSA.

Arch Intern Med. 2003 Mar 10; 163(5):565-71.

3.d

Rationale: Possibly daytime sleepiness and more severe disease associated with improved adherence. African American race and/or lower socioeconomic class associated with lower adherence. Pressure level not predictive. In addition to the already known determinants of CPAP acceptance, patients with low SES are less receptive to CPAP treatment than groups with higher SES. CPAP support and patient education programs should be better tailored for low SES people in order to increase patient treatment initiation and adherence.

Sleep. 2009 Apr 1; 32(4): 545–552.

4.b

Rationale: Eszopiclone 3 mg prior to PSG titration vs placebo 226 Eszopiclone improves the quality of titration and reduces need for repeat studies. Short term eszopiclone may improve titration efficacy and 6-month adherence – Other hypnotics not associated with improved adherence. Lettieri (2009) reported Eszopiclone 3 mg vs Placebo x 14 days 160 Eszopiclone improved adherence, both nights used and hours per night after 6 months.

Ann Intern Med. 2009 Nov 17;151(10):696-702

5.a

Rationale: Auto-PAP is recommended for patients with moderate to severe uncomplicated OSA. It is not recommended for OSA with co-morbidities: - CHF, hypoventilation syndromes, COPD, non-snorers (UPPP). Auto-PAP outcomes include Lower mean pressures with APAP. It is as effective as CPAP for uncomplicated moderate to severe OSA.

SLEEP 2008;31(1):141-147.

6.a

Rationale: AASM Guidelines suggest that oral appliances are Indicated for mild-to-moderate OSA. Severe OSA should have initial trial with CPAP. CPAP is more effective for reducing AHI and improving oxygenation. Role in reducing blood pressure is not clear, though data suggest benefits similar to CPAP. Among patients with obstructive sleep apnea, both CPAP and oral appliances were associated with reductions in BP. Network meta-analysis did not identify a statistically significant difference between the BP outcomes associated with these therapies.

JAMA. 2015;314(21):2280-2293.

7.b

J Appl Physiol (1985). 2000 Jun;88(6):2287-95

8.c

J Physiol. 1983 Oct; 343: 507–526.

9.d

Rationale: Narcotic induced central apneas are most commonly associated with long acting opioids, however, methadone is most common. There is a dose dependent relationship between narcotics and central apneas. Typically, apneas do not resolve. The condition may respond best to a reduction in dose of opioids

Sleep Medicine Clinics, 2014: 9(1); 49 - 56

10.c

Rationale: During transition from awake to non-rapid eye movement (NREM) sleep, cortical control of respiration is progressively diminished, and respiration is dependent on metabolic control based on PCO₂ levels. During REM sleep, ventilation is predominately under central control by pontomedullary inspiratory neurons. During N1 or N2 NREM stage, any unstable respiratory state like arousal or sudden change in sleep stage will result in hyperventilation and decrease in PCO₂ levels. If the PCO₂ levels decrease below the already increased apnea threshold levels, central apnea ensues. This slow rise in PCO₂ levels will stimulate chemoreceptors and will result in the hyperventilation phase. Due to unstable central control and imprecise feedback support in patients with heart failure and stroke, the PCO₂ levels during hyperventilation will fall below the apnea threshold levels, resulting in apnea again. These cycles of apnea and hypercapnia continue, resulting in Cheyne-Stokes respiration.

<https://www.ncbi.nlm.nih.gov/books/NBK448165/>

ON 40+8

UPDATE: A NAT GEO
EXPLORER WALKS
AROUND THE WORLD

ARE WE REALLY
AS AWAKE AS WE
ACT ONLINE?

THE SECRET TRADE
IN EXOTIC
BUTTERFLIES

NATIONAL GEOGRAPHIC

SLEEP

Inside the new science of slumber

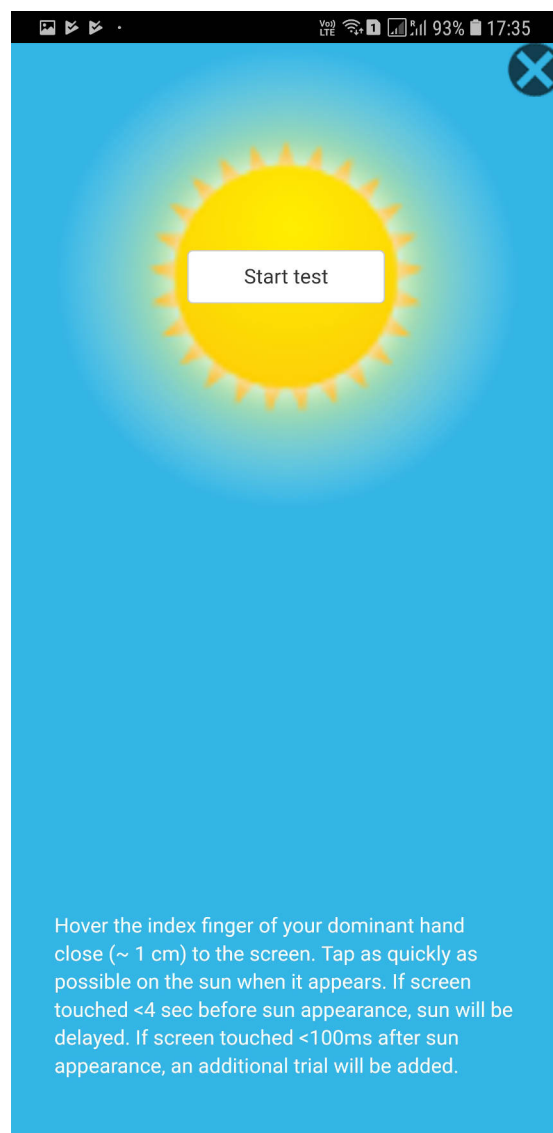
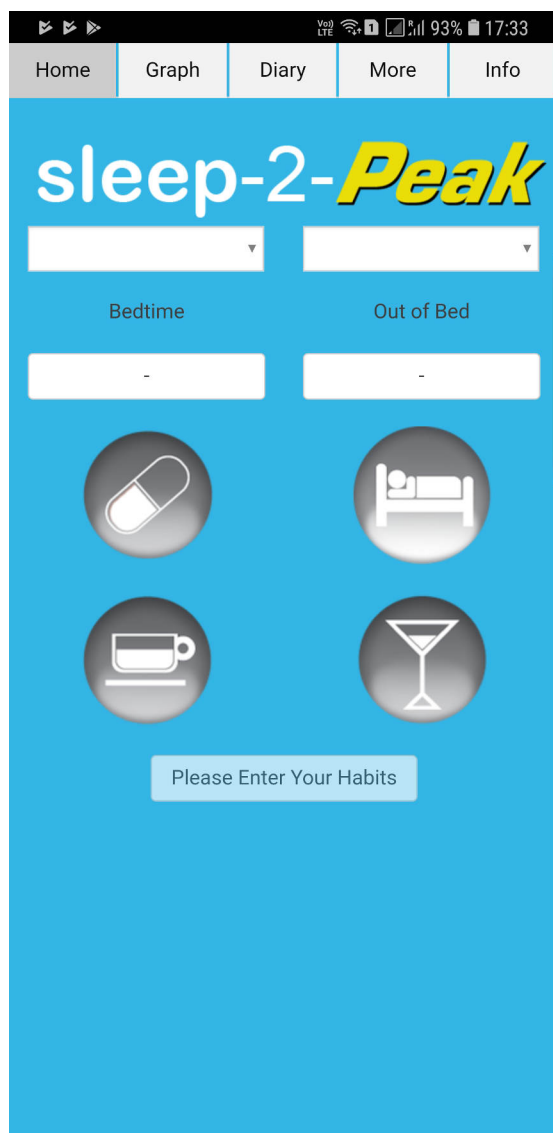


"We are now living
in a world where the
nighttime environment
is becoming more
important than ever."
—NATIONAL GEOGRAPHIC

“Sleep-2-Peak” app for Phone

3-min version of s2P is a valid tool for differentiating alert from sleepy states and is as sensitive as the Psycho Vigilance Test for tracking fatigue-related changes during extended wakefulness and sleep loss.

Jean Francois Brunet et al. Validation of sleep-2-Peak: A smartphone application that can detect fatigue-related changes in reaction times during sleep deprivation. Behav Res (2017) 49:1460–1469



Sleep and Digital App's

Scoring Stage Wake and N1 in Adults



Mr. Awnish Singh

Sleep Lab Manager, Neurology and Sleep Centre
New Delhi

Certified Sleep Technologist by IBSM

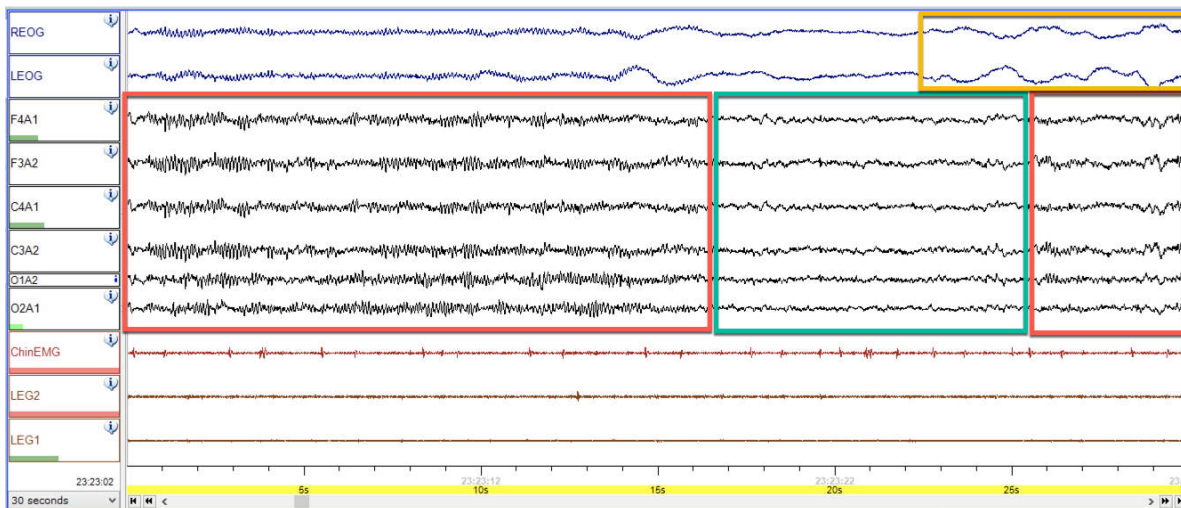


Fig:1 Stage Wake (W) 30 sec epoch: In EEG channels, Alpha activity (red box) is present for more than 50% of the epoch. In this case alpha activity (red box) is present for 20sec. Low amplitude mixed frequency (green box) is present for 10 sec. Slow eye movements (yellow box) are seen in EOG channels.

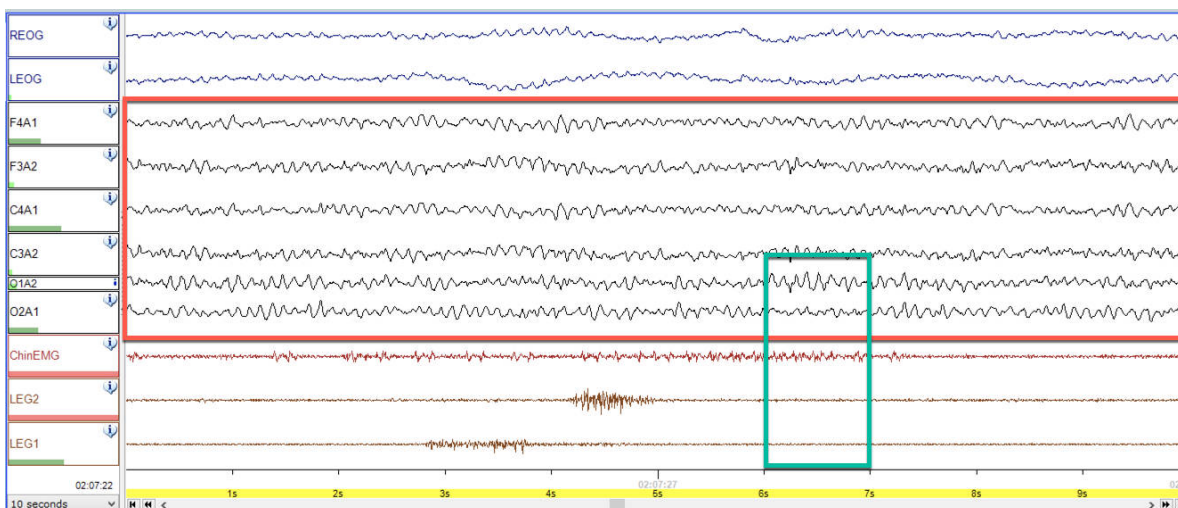


Fig: 2 Stage Wake (W) 10 sec Epoch: This epoch shows the appearance of alpha activity in EEG channels (red box) in 10 sec epoch. This is useful to measure the frequency of alpha waves. Alpha waves have a frequency of 8hz (Count no. of peaks in 1 sec) in O1 EEG lead in above epoch (green box).

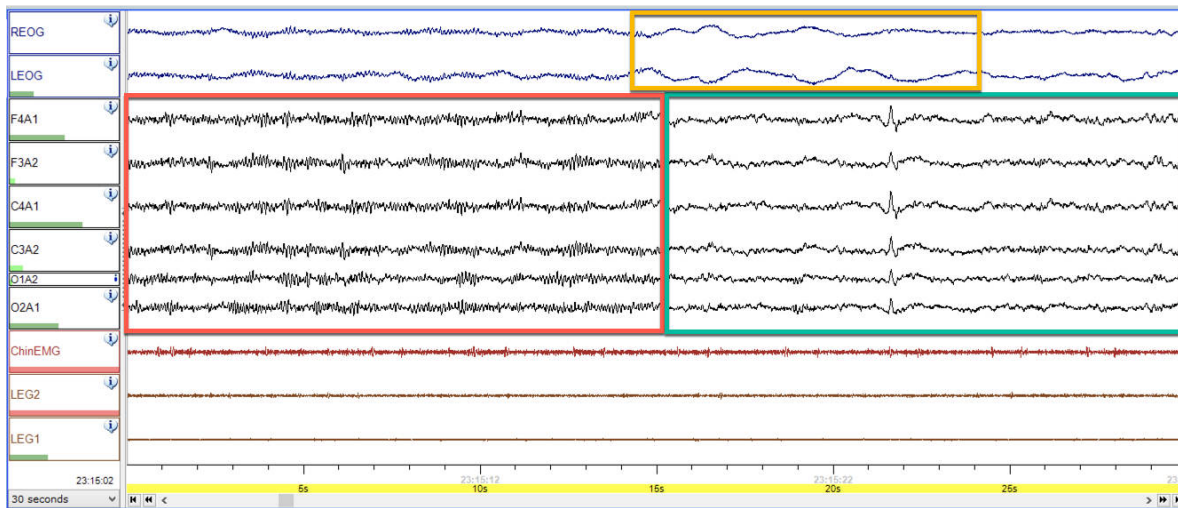


Fig: 3 Stage N1 30 sec Epoch: This is a challenging epoch. Alpha activity (red box) is present for first 15sec in EEG channels and low amplitude mixed frequency (LAMF) activity (green box) is present for last 15 sec. AASM manual for sleep scoring rules does not clarify this situation where alpha and LAMF activity occupy 50% of epoch each. In our lab we score it as Stage N1. Slow eye movements (yellow box) are seen in EOG channels.

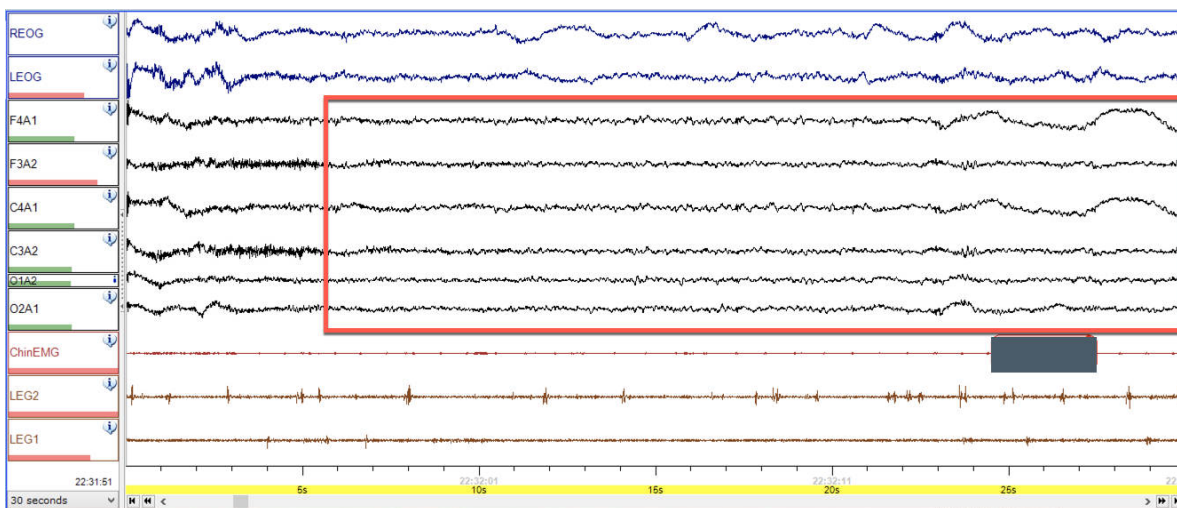


Fig:4 Stage N1 30sec Epoch: In this Epoch EEG channels show low amplitude mixed frequency (LAMF) activity (red box) for more than 50% of the epoch in absence of sleep spindles or K-complexes.

AASM Rules for scoring Stage Wake: In EEG, Alpha activity should be present for more than 50% of the epoch. Blinks, rapid eye movements and reading eye movements may be present.

AASM Rules for scoring Stage N1: In EEG, alpha activity is replaced by LAMF activity for more than 50% of the epoch. Slow rolling eye movements may be present in EOG. Vertex sharp waves may be present in EEG.



Ms. Ck. Divya

Sleep technologist in Amara Sleep Clinic Tirupati
Certified Sleep Technologist by IBSM

Why did you decide to become Sleep Technologist?

When I started my career I did not know anything about this field. When I came to know the importance of sleep and how people suffer when they are not sleeping well, I decided to become a sleep technologist and want to give my patient or people a happy sleep which leads to a happy and healthy life.

What is the most challenging aspect of your profession?

As a sleep technologist we have to give our patients a happy and healthy sleep by rectifying their sleep related problems (sleep disorders) by educating, evaluating and treating and also by giving long term care.

What are the career opportunities for sleep technologists in India?

Sleep medicine is rapidly expanding fields in present days. But in India, there is no better opportunities for sleep medicine and sleep technologist because lack of public awareness and importance of sleep and the impact of sleep loss.

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

The things that are required to improve the quality of sleep technologist in India are:

- * Professional training
- * Conducting CME's
- * Education on sleep disorders
- * Right guidance
- * Opportunities for Education
- * Public awareness on sleep are needed to improve the supply and quality of sleep technologist.

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 helps sleep technologist as well as public in India. For sleep technologist it helps to get lot more career opportunities. And for public to get a happy and healthy sleep without any sleep disturbances.

Hundreds of delegates from countries all over the world participated in most recent [World Sleep Day](#)® back in March. The World Sleep Day committee has selected the newest winners of the Distinguished Activity Awards. Congratulations to all 2018 winners and participants!

Winners will receive their awards at the Opening Ceremony of [World Sleep 2019](#) in Vancouver, Canada on September 22, 2019.

2018 Distinguished Activity Award Winners

[Dr. Nagarajan Ramakrishnan \(India\) | Nithra Institute of Sleep Sciences](#)

[Dr. Montida Veeravigrom \(Thailand\) | Sleep Society of Thailand](#)

[Dr Himanshu Garg & Dr Prerana Chopra \(India\) | Aviss Health, Centre for Sleep Disorders](#)

[Dr. Elena Majano \(El Salvador\) | Bernes Medical Sleep and Neurological Center](#)

[Lew Mun Yee \(Multicountry\) | AM LIFE International](#)

[Paula Araujo \(Brazil\) | Brazilian Sleep Society](#)

2018 Honorable Mention

[Dr. Petar Chipev, Prof. Ivan Staykov \(Bulgaria\) | Bulgarian Society of Somnology](#)

[Dr. Reut Gruber, Debbie Will-Dryden \(Canada\) | Canadian Sleep Society & Sleeping Children Around the World](#)

[Matilde Valencia-Flores & Montserrat Reséndiz-García \(Mexico\) | Sleep Disorders Clinic, UNAM and INCMNSZ](#)

[Dr. Laura Palagini \(Italy\) | AIMS](#)

[David Lira \(Peru\) | Instituto Peruano de Neurociencias – IPN](#)

[Dr. Antonio Culebras \(United States\) | Upstate Sleep Center](#)

[Luca Roberti \(Italy\) | Associazione Apnoici Italiani Onlus](#)

[Melissa Lipford, MD \(United States\) | Westin Hotels & Resorts](#)

[Jitka Bušková \(Czech Republic\) | NIMH](#)

World Sleep Day 2018 Awards

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

2017

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

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

2018

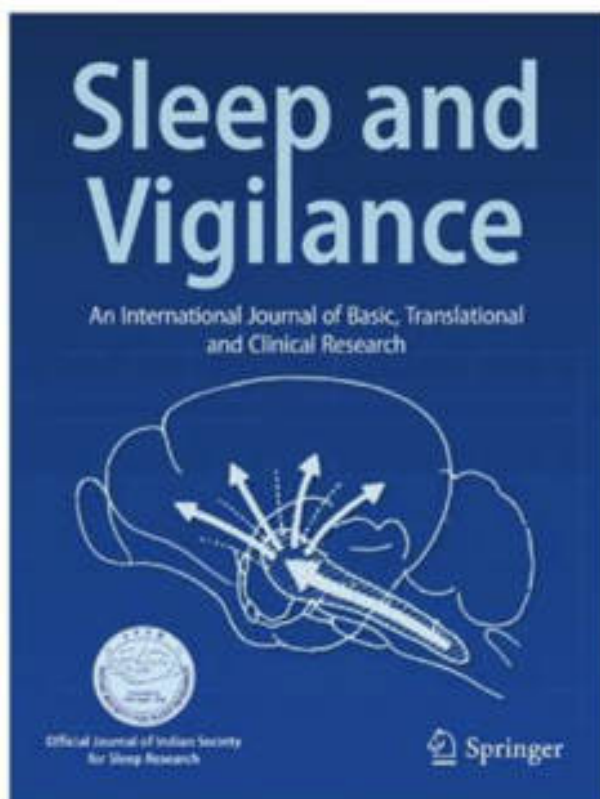
Ms. D Aruna Dhanuskodi
Dr. Laxmi Khanna
Mr. Thota Venkataswara Rao
Mr. Mahendra C Rathod

2017

Mr. Anees C.A.
Mr. Santosh J. Jaguste
Mr. Chand B. Dudekula
Ms. Divya Coni Kumar
Mr. Thaheer Shaik
Mr. Neeraj

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>



An International Journal of
Basic, Translational and
Clinical Research

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

Electronic access-

link.springer.com

Subscription information-

springer.com/librarians

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

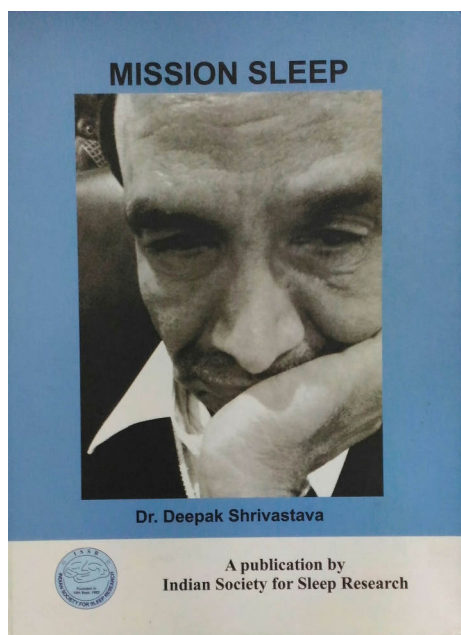
Published in collaboration and with editorial support from the Indian Society for Sleep Research (ISSR)

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.

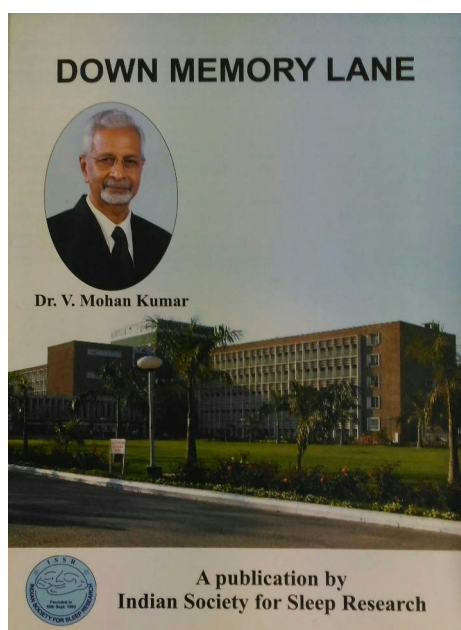
On the homepage of Sleep and Vigilance at springer.com you can

- Sign up for our Table of Contents Alerts
- Get to know the complete Editorial Board
- Find submission information

Books by ISSR



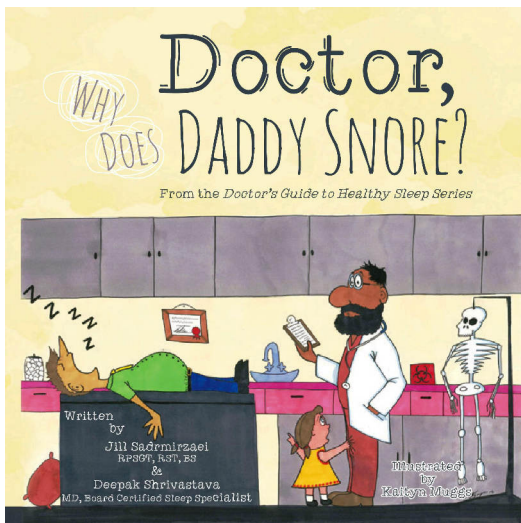
The book is ISSR tribute to Dr. Deepak Shrivastava's contributions to the field of Sleep Medicine and his active role in the development of Sleep Medicine in India. The book was released during the ISSR 25yr celebration Conference in Goa in SEP 2017.



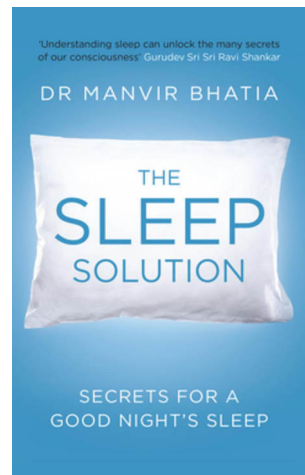
The book is ISSR tribute to DR. V. Mohan Kumar for his contributions to the field of Sleep Science and its development in India. The book was released during the ISSR 25yr celebration Conference in Goa in Sep 2017.



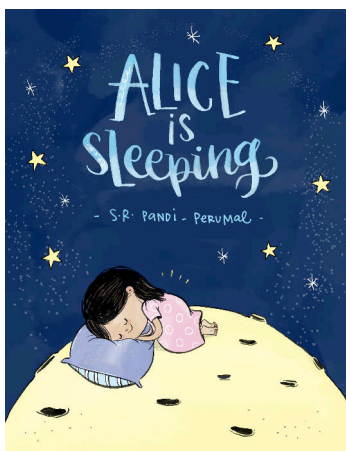
This book is a compilation of the ISSR achievements in 25yrs since its inception. The book was released during the ISSR 25yr celebration Conference in Goa in Sep 2017.



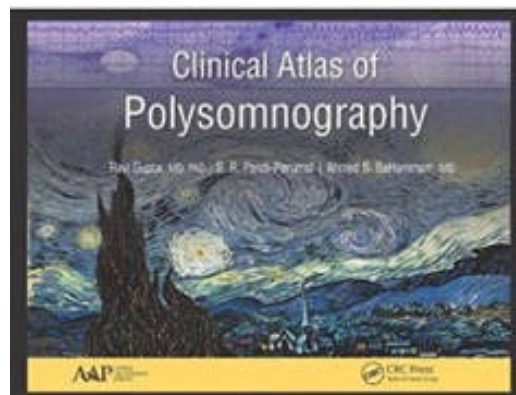
Author: Dr. Deepak Shrivastava



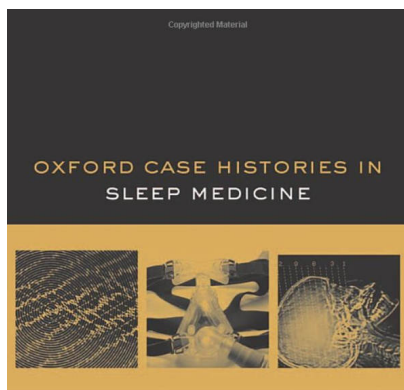
Author: Dr. Manvir Bhatia



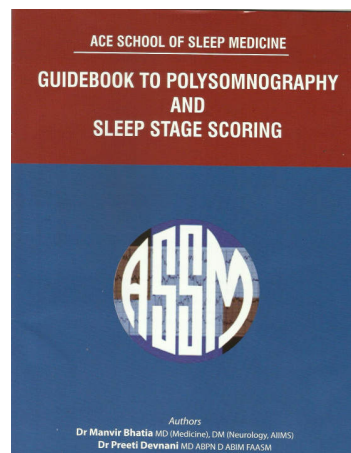
Author: S. R. Pandi-Perumal



Authors: Dr. Ravi Gupta, S. R. Pandi-Perumal, Ahmed S Bahammam



Author: Dr. Himender Makker



Dr. Manvir Bhatia and Dr. Preeti Devnani

Books by ISSR Members

National Sleep Medicine Course (NSMC) History (2006-2018)



2006- Dr. H.N. Mallick, AIIMS New Delhi



2009- Dr. Manvir Bhatia, Sir Ganga Ram Hospital, New Delhi



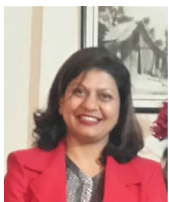
2016- Dr. Ravi Gupta, HIMS, Dehradun, Uttarakhand



2015- Dr. Kripesh Sarmah, Guwahati, Assam



2011- Dr. Preeti Devnani, Mumbai, Maharashtra



2017 & 2018: Lt. Col Dr. Karuna Datta, Goa

2008- Dr. Arpita Priyadarshini, VSS Medical College, Burla, Odisha



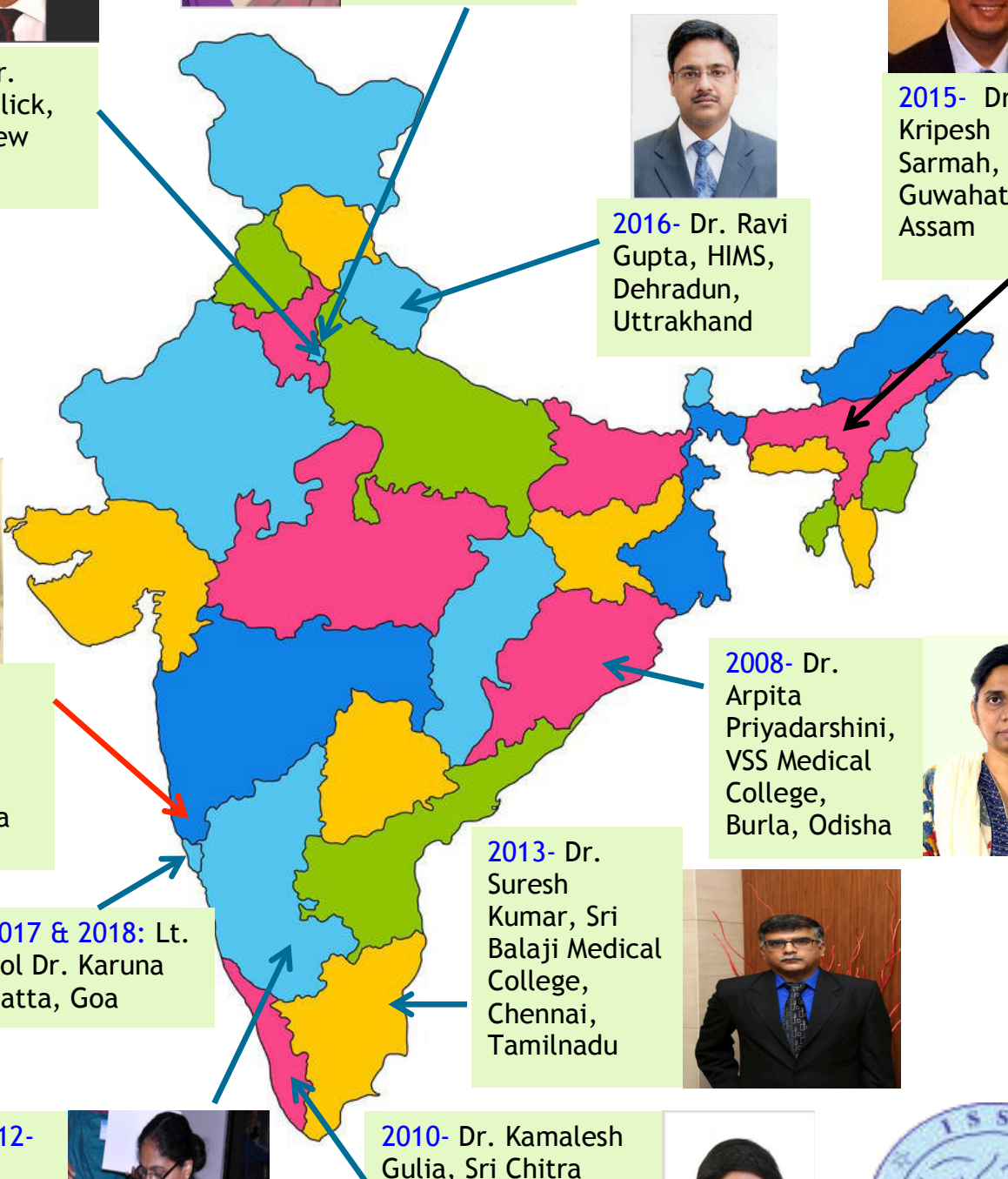
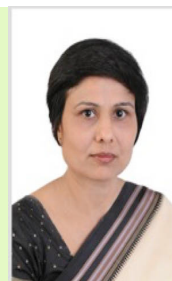
2013- Dr. Suresh Kumar, Sri Balaji Medical College, Chennai, Tamilnadu



2007 & 2012- Dr. Bindu Kutty, NIMHANS Bangalore, Karnataka



2010- Dr. Kamalesh Gulia, Sri Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram, Kerala



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 Life time members will receive subscription to-

1. Journal of Sleep and Biological Rhythm
2. "Sleep and Vigilance" Journal
3. Sleep Medicine Journal
4. ISSR News letter
5. 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)
European Sleep Research Society (ESRS)
Australasian Sleep Association
Asian Sleep Research Society (ASRS)
Indian Sleep Disorder Association (ISDA)
Indian Society for Sleep Research (ISSR)
Indian Association of Surgeons for Sleep Apnea (IASSA)
South East Asian Academy of Sleep Medicine (SEAASM)
Board of Registered Polysomnography Technologists (BRPT)
World Sleep Society
American Association of Physicians of Indian Origin-Sleep (AAPIOS)

www.aasmnet.org
www.aastweb.org
www.absm.org
www.esrs.eu
www.sleep.org.au
www.asronline.org
www.isda.co.in
www.issr.in
www.iassa.in
www.seaasm.org
www.brpt.org

www.worldsleepsociety.org
www.weartweb.com/aapios/



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