

AASM Scoring Manual Version 2.2 Updates: New Chapters for Scoring Infant Sleep Staging and Home Sleep Apnea Testing

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Version 2.2 of the American Academy of Sleep Medicine (AASM) Manual for the Scoring of Sleep and Associated Events was released on July 1, 2015. The Scoring Manual Editorial Board (previously the Scoring Manual Committee) would like to call attention to the most important changes. As discussed below, there are two new major chapters providing rules for the staging of infant sleep and scoring respiratory events in home sleep apnea testing (HSAT) studies. The new chapters were approved by the AASM Board of Directors to fill two obvious gaps in the Scoring Manual. The Scoring Manual Editorial Board would like to emphasize that any changes in the manual are instituted after long deliberation and consultation with area content experts.

Version 2.2 of the Scoring Manual, for the first time, includes rules for scoring sleep studies in term infants less than two months of age. This milestone acknowledges the importance of studying sleep across the lifespan, beginning with our youngest patients. The new scoring rules address sleep staging in infants and are based on the classic infant scoring rules of Anders et al.¹ Development of these new rules benefitted from expert consultation from Madeleine Grigg-Damberger, MD, and Mark Scher, MD. One important difference between the current manual and Anders is that sleep is now classified into three stages: REM, NREM and transitional, as compared to the Anders classification of active, quiet and indeterminate sleep. This new classification was based on the physiologic similarities between active and REM sleep, and quiet and NREM sleep. Further, it was realized that young infants have stages of sleep that manifest elements of both REM and NREM sleep, hence, the term "transitional" rather than "indeterminate." Note that respiratory events in infants should be scored using the standard AASM pediatric scoring criteria.

Version 2.2 of the AASM Scoring Manual now also includes scoring rules for adult Home Sleep Apnea Testing (HSAT, chapter IX). The foundation for the development of these rules includes the work of the 2010 AASM Out-of-Center Task Force who developed the SCOPER (Sleep, Cardiovascular, Oximetry, Position, Effort, Respiratory) classification system.² This classification system systematically evaluated available technology and evidence for diagnosing obstructive sleep apnea using portable devices. These new HSAT scoring rules allow for standardization of scoring and reporting data generated from HSAT

devices and are consistent with AASM accreditation standards for HSAT. Incorporating these rules not only standardizes reporting from sleep center to sleep center, but also provides a foundation for monitoring quality metrics and patient outcomes. This chapter includes specific reporting parameters for newer monitoring technology such as peripheral arterial tonometry (PAT). As the number and types of HSAT devices evolve, and new technology and evidence emerge, these scoring rules will also evolve to keep pace with the dynamic HSAT landscape.

Going forward, our major goals are to clarify scoring rules (by providing additional examples) and address areas of ambiguity or controversy. To this end, the Editorial Board will begin an ongoing dialog with the panel of "gold standard" reviewers of the AASM Inter-scorer Reliability (ISR) program. This will provide important feedback concerning difficulties that arise when participants apply the scoring rules to "real life" sleep studies. Each month, we also receive thoughtful inquiries about interpretation of the current rules. Many of these questions raise interesting points or reveal areas of confusion. As we know, the rules may not provide answers for all situations, nor satisfactorily anticipate the variety of pathological issues that may be seen. Because some of these issues have little data, these scenarios will require the use of the scorer's clinical judgment. However, we will continue to strive to improve the Scoring Manual as a living document. By utilizing the data and feedback from both the ISR program and members, we can identify and investigate areas that require further clarification and apply evidence-based decision making to guide the development of new rules or clarifications of existing rules in future versions. And, as always, we are open to and appreciative of your questions and comments.

CITATION

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**Barbara Ruaro, Elisa Baratella, Marco
Confalonieri, Francesco
Salton, Caterina Antonaglia**

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Spriggs's Essentials of Polysomnography: A Training Guide and Reference for Sleep Technicians Lisa M.

Endee,2020-02-10 Essentials of Polysomnography Third Edition is a full color text designed specifically for sleep technicians and professionals This is an excellent tool for training new sleep technicians or preparing for the RPSGT and CPSGT certification exams

Oral and Maxillofacial Surgery - E-Book Raymond J. Fonseca,2017-03-08 Selected for Doody's Core Titles 2024 in Oral Maxillofacial Surgery This trusted three volume resource covers the full scope of oral and maxillofacial surgery with up to date evidence based coverage of surgical procedures performed today NEW Full color design provides a more vivid depiction of pathologies concepts and procedures NEW Expert Consult website includes all of the chapters from the print text plus classic online only chapters and an expanded image collection references linked to PubMed and periodic content updates NEW Thoroughly revised and reorganized content reflects current information and advances in OMS NEW New chapters on implants and orthognathic surgery cover the two areas where oral and maxillofacial surgeons have been expanding their practice NEW Digital formats are offered in addition to the traditional print text and provide on the go access via mobile tablets and smart phones

The Application of Artificial Intelligence in Brain-Computer Interface and Neural System Rehabilitation Fangzhou Xu,Dong Ming,Tzyy-Ping Jung,Peng Xu,Minpeng Xu,2023-11-15

Natural and Artificial Computation for Biomedicine and Neuroscience José Manuel Ferrández Vicente,José Ramón Álvarez-Sánchez,Félix de la Paz López,Javier Toledo Moreo,Hojjat Adeli,2017-06-10 The two volumes LNCS 10337 and 10338 constitute the proceedings of the International Work Conference on the Interplay Between Natural and Artificial Computation IWINAC 2017 held in Corunna Spain in June 2017 The total of 102 full papers was carefully reviewed and selected from 194 submissions during two rounds of reviewing and improvement The papers are organized in two volumes one on natural and artificial computation for biomedicine and neuroscience addressing topics such as theoretical neural computation models natural computing in bioinformatics physiological computing in affective smart environments emotions as well as signal processing and machine learning applied to biomedical and neuroscience applications The second volume deals with biomedical applications based on natural and artificial computing and addresses topics such as biomedical applications mobile brain computer interaction human robot interaction deep learning machine learning applied to big data analysis computational intelligence in data coding and transmission and applications

Review of Sleep Medicine E-Book Alon Y. Avidan,2017-06-29 Successfully review sleep medicine whether you plan to improve your sleep medicine competency skills or prepare for the Sleep Medicine Certification Exam with this expanded review and test workbook that includes more than 1 400 interactive questions and answers Now in full color throughout Review of Sleep Medicine 4th Edition by Dr Alon Y Avidan features a new high yield format designed to help you make the most of your study time using figures polysomnography tracings EEG illustrations sleep actigraphy and sleep diaries tables algorithms and key points to

explain challenging topics Includes concise summaries of all aspects of sleep medicine clinical summaries from epidemiology pathophysiology clinical features diagnostic techniques treatment strategies and prognostic implications Provides a library of assessment questions with comprehensive explanations to help you identify the reasoning behind each answer and think logically about the problems Offers the expertise of a multidisciplinary global team of experts including sleep researchers multispecialty sleep clinicians and educators The unique strength of this educational resource is its inclusion of all sleep subspecialties from neurology to pulmonary medicine psychiatry internal medicine clinical psychology and Registered Polysomnographic Technologists Perfect for sleep medicine practitioners sleep medicine fellows and trainees allied health professionals nurse practitioners sleep technologists and other health care providers as review tool quick reference manual and day to day resource on key topics in sleep medicine Provides a highly effective review with a newly condensed outline format that utilizes full color tables figures diagrams and charts to facilitate quick recall of information Includes new and emerging data on the function and theories for why we sleep quality assessment in sleep medicine and benefits and risks of sleep inducing medications Contains new chapters on sleep stage scoring sleep phylogenic evolution and ontogeny geriatric sleep disorders and quality measures in sleep medicine Features an expanded online question bank with 1 400 questions and answers that mimic the ABMS sleep exam in style and format

Circadian Rhythms, Sleep, and Sleep Disorders

,2025-01-24 Circadian rhythms sleep and sleep disorders covers the topic in two sections focusing on basic science and clinical application In the basic section new developments and research findings focusing on basic circadian rhythm and sleep physiology in animals and humans is highlighted The chapters are written in short mini review formats in order to concisely describe the fundamentals and current hot topics The basic part starts with a chapter on the fundamentals and new discoveries on oscillating circuitries in the sleeping rodent and human brain This sets the stage for chap 2 focusing on circadian and homeostatic aspects of human sleep regulation Chap 3 extends these aspects to human cognition The next chapter reports on visual and non visual effects of light on human behavior particularly endocrine and electrophysiological correlates Chap 5 covers chronic sleep restriction effects on functional connectivity states The last two chapters 6 and 7 give a broad overview on sleep modeling across physiological levels with a focus on a quantitative model of sleep wake dynamics based on the physiology of the brainstem ascending arousal system The clinical section of the book describes the circadian rhythm sleep wake disorders from epidemiology to clinical picture and treatment Disorders covered include delayed and advanced sleep phase syndrome Irregular sleep wake rhythm disorder shift work disorder restless legs syndrome nocturnal eating syndrome narcolepsy and sleep apnea Pharmacological and non pharmacological treatments of insomnia are explored as well as the role of sleep wake modulation in the pathogenesis and clinical profile of neurodegenerative disorders such as Parkinson s disease and Alzheimer s disease Covers basic science and clinical disorders Includes homeostatic aspects of sleep regulation Discusses effects of sleep and sleep deprivation on cognition and behavior Provides quantitative models of

sleep wake dynamics Reviews epidemiology clinical picture and treatment of disorders Identifies pharmacological and nonpharmacological treatments of insomnia Explores sleep disorders accompanying Parkinson s Alzheimer s and other disorders

Hypertension and Cardiovascular Disease in Asia C. Venkata S. Ram,Boon Wee Jimmy Teo,Gurpreet S. Wander,2022-04-27 This book will cover all aspects of hypertension and the manifestations of cardiovascular disease in the Asian population Asia has the largest population of all the continents and also has the largest number of people suffering from these diseases Due to an expanding economy and increasing affluent lifestyles their incidence is increasing at alarming rates in fact this continent is a ticking time bomb for HTN and CVD outbreaks The book fills a large gap as there are currently no volumes on this topic and provides much needed information for physicians not only in Asia but globally Not only physicians but also all related medical professionals and libraries will benefit from this book to which renowned international experts contributed

Critical Care Nursing Leanne Aitken,Andrea Marshall,Thomas Buckley,2023-12-19 The internationally acclaimed text Critical Care Nursing is designed to support undergraduate and postgraduate students and critical care nurses in practice to develop the knowledge and skills necessary to deliver high quality patient care to contribute to improved patient outcomes The fifth edition has been fully updated with the latest evidence resources and tools designed to help you master a range of competencies from patient monitoring to delivering multidimensional interventions using complex lifesaving equipment and managing the deteriorating patient There is a focus on the scope and principles of practice quality and safety standards ethical considerations and increased support for nurses Highly regarded by clinicians and students around the world this book will encourage and challenge you to develop world class practice and ensure the delivery of the highest quality care Latest research technologies and care considerations collated by an internationally respected team of editors and contributors Case studies research vignettes and learning activities to support further learning Practice tips case studies and learning activities link theory to practice Endorsed by the Australian College of Critical Care Nurses ACCCN the peak professional organisation representing critical care nurses in Australia Accompanying adaptive quizzing to support students with assessment preparation Instructor resources on Evolve Case Study suggested responses Learning Activity suggested responses Additional Case Study answers Image Table Box collection Student and Instructor resources on Evolve Additional Case Studies Fully updated with the most recent research data procedures and guidelines from expert international critical care nursing clinicians and academics Increased focus on pandemic related considerations including COVID 19 woven throughout all chapters

XXIX Brazilian Congress on Biomedical Engineering - Volume 1: Biomedical Robotics, Rehabilitation, Biomechanics, and Biomedical Signal Processing Alcimar Barbosa Soares,George Cunha Cardoso,Renata Ferranti Leoni,2025-08-08 This book reports on the latest research and developments in Biomedical Engineering with a special emphasis on topics of interest and findings achieved in Latin America This first volume of a 3 volume set covers cutting edge assistive technologies and rehabilitation advances in biomedical robotics biomechanics and

neuroengineering as well as topics in biomedical signal processing biosensors and medical instrumentation alike Throughout the book a special emphasis is given to low cost technologies and to their development for and applications in clinical settings Based on the XXIX Brazilian Congress on Biomedical Engineering CBEB 2024 held on September 26 2024 Ribeir o Preto SP Brazil this book provides researchers and professionals in the biomedical engineering field with extensive information on new technologies and current challenges for their clinical applications

Complexity and Nonlinearity in Cardiovascular Signals Riccardo Barbieri, Enzo Pasquale Scilingo, Gaetano Valenza, 2017-08-09 This book reports on the latest advances in complex and nonlinear cardiovascular physiology aimed at obtaining reliable effective markers for the assessment of heartbeat respiratory and blood pressure dynamics The chapters describe in detail methods that have been previously defined in theoretical physics such as entropy multifractal spectra and Lyapunov exponents contextualized within physiological dynamics of cardiovascular control including autonomic nervous system activity Additionally the book discusses several application scenarios of these methods The text critically reviews the current state of the art research in the field that has led to the description of dedicated experimental protocols and ad hoc models of complex physiology This text is ideal for biomedical engineers physiologists and neuroscientists This book also Expertly reviews cutting edge research such as recent advances in measuring complexity nonlinearity and information theoretic concepts applied to coupled dynamical systems Comprehensively describes applications of analytic technique to clinical scenarios such as heart failure depression and mental disorders atrial fibrillation acute brain lesions and more Broadens readers understanding of cardiovascular signals heart rate complexity heart rate variability and nonlinear analysis

Oxford Handbook of Psychiatry David Semple, Roger Smyth, 2019-07-30 This new fourth edition of the Oxford Handbook of Psychiatry is the essential evidence based companion to all aspects of psychiatry from diagnosis and conducting a clinical interview to management by subspecialty Fully updated to reflect changes to the legislature and classification of psychiatric disorders and with coverage of the anticipated ICD 11 coding this Handbook provides the latest advances in both clinical practice and management today As in previous editions the Handbook is indexed alphabetically by ICD 10 and DSM 5 codes as well as a list of acute presentations for quick access in emergency situations The practical layout helps the reader in making clinical diagnosis and suggested differential diagnosis makes this title an invaluable guide to provide reassurance to health professionals when dealing with psychiatric issues With a new chapter on Neuropsychiatry and a re written section on gender dysphoria to reflect the biological and cultural developments in understanding and research since the previous edition and filled with clinical observations guidance and commentary that reflects the authors practical experiences of working in psychiatry this Handbook is the indispensable guide for all trainee and practising psychiatrists

Proceedings of International Conference on Communication and Computational Technologies Sunil Dutt Purohit, Dharm Singh Jat, Ramesh Chandra Poonia, Sandeep Kumar, Saroj Hiranwal, 2020-08-27 This book offers a collection of high quality peer reviewed research papers presented at the Second

International Conference on Communication and Computational Technologies ICCCT 2019 held at Rajasthan Institute of Engineering and Technology Jaipur Rajasthan India on 30 31 August 2019 In contributions prepared by researchers from academia and industry alike the book discusses a wide variety of industrial engineering and scientific applications of emerging techniques

Obstructive Sleep Apnea Syndrome (OSAS). What's New? Barbara Ruaro, Elisa Baratella, Marco Confalonieri, Francesco Salton, Caterina Antonaglia, 2022-11-03 *Sleep and Neuropsychiatric Disorders* Ravi Gupta, David N. Neubauer, S. R. Pandi-Perumal, 2022-02-01 This book explores the intricate links between sleep and neuropsychiatric diseases In clinical settings understanding the development treatment and management of neuropsychiatric diseases poses a substantial challenge Neuropsychiatric disorders place a significant cost on society affecting the health of people affected care providers and the general community Sleep and neuropsychiatric disease are inextricably linked Sleep disorders are widespread in these populations and are frequently overlooked in neurology and psychiatry The book offers readers up to date information on different facets of the bidirectional connections between sleep and neuropsychiatric diseases Following the initial fundamental science part a unique series of chapters concentrate on the behavioural manifestations of sleep problems a hitherto unexplored field Additional chapters include patient evaluation techniques as well as public health implications of sleep disorders The individual chapters cover all main mental and neurological diseases where a change in sleep is evident and recent concepts in pathogenesis presentation evaluation and treatment Neuropsychotropic drugs must be seen as a double edged sword when it comes to sleep and sleep disorders Overall this book is an excellent resource for learning about neuropsychiatric diseases and how they affect sleep while simultaneously being impacted by sleep

Psychiatric Symptoms and Comorbidities in Autism Spectrum Disorder Luigi Mazzone, Benedetto Vitiello, 2016-05-19 This book explains in detail the diagnosis management and treatment of comorbid disorders in patients with autism spectrum disorders ASD Important insights are provided into the nature of the symptoms of psychiatric comorbidities in these patients and particularly children and adolescents with a view to assisting clinicians in reaching a correct diagnosis that will permit the implementation of appropriate treatment strategies whether psychological or pharmacological The full range of potential comorbidities is considered including mood disorders anxiety disorders obsessive compulsive disorder schizophrenia spectrum and other psychotic disorders eating disorders disruptive behavioral disorders Tourette s disorder and substance related disorders In each case guidance is provided on how to avoid incorrectly attributing symptoms to ASD and on treatment options Psychiatric Comorbidities in Autism Spectrum Disorders will be of value to all practitioners who are confronted by patients with these complex co occurring conditions

Sleep Spindles: Breaking the Methodological Wall Christian O'Reilly, Simon C. Warby, Tore Nielsen, 2017-03-07 In the last decade sleep spindles have attracted steadily increasing attention This interest is motivated by the many intriguing relationships between spindles and various diseases e g schizophrenia Parkinson Alzheimer autism mental retardation recovery processes e g post

brain stroke and cognitive faculties e.g. memory consolidation, intelligence, dream recall, sleep preservation. Nonetheless, a methodological wall has impeded the study of sleep spindles. Their investigation rests heavily on our ability to reliably and consistently identify spindle patterns from background EEG activity, a task involving many obstacles including a fuzzy definition of spindles, low inter-expert agreement on their scoring, lack of consensus on standard techniques for their automated detection, low reproducibility of observed characteristics, and correlates unavailability of large standardized high-quality databases and inconsistencies in the methods used to evaluate the performance of automated detectors. The primary aims of this research topic were to bring together world-class researchers on a project designed to facilitate exchanges on methodological difficulties encountered in assessing sleep spindles and to promote standardized spindle-related resources. In preparing their contributions, authors were encouraged to use existing or to propose new publicly available resources for assessing sleep spindles. To allow fair and accurate comparison of reported results, the authors were also encouraged to validate their tools on a common benchmark. A database containing expert spindle scoring, i.e. the Montreal Archive of Sleep Studies, was made publicly available for that purpose.

Sleep Medicine Amir Sharafkhaneh, David Gozal, 2023-06-13 Many fields of medicine have looked at the issue of transitioning care from pediatrics to adults. This book focuses on that transition within the field of sleep medicine. This book gathers and presents in volume information that will assist practitioners to transition the care of their pediatric patients suffering from sleep disorders. The book will discuss anatomical, physiological, and psychological aspects as children grow into adulthood. Specifically, changes in brain function and anatomy, cardiorespiratory function and anatomy, and changes in facial structure are explored. Also discussed are the tools that are used for assessing sleep and how it may apply differently to children and adults. Chapters cover each group of sleep disorders with focus on how the diagnosis, prognosis, and management may change with the transition from childhood through adolescence to adulthood. In addition, gaps in needs and research are discussed.

Computer Analysis of Images and Patterns Nicolas Tsapatsoulis, Andreas Lanitis, Marios Pattichis, Constantinos Pattichis, Christos Kyrkou, Efthymoulos Kyriacou, Zenonas Theodosiou, Andreas Panayides, 2023-09-19 This volume LNCS 14184 and 14185 constitutes the refereed proceedings of the 20th International Conference CAIP 2023 in Limassol, Cyprus, in September 2023. The 54 full papers presented were carefully reviewed and selected from 67 submissions. They were organized in the following sections as follows: Part I: PAR Contest 2023, Deep Learning, Machine Learning for Image and Pattern Analysis, and Object Recognition and Segmentation; Part II: Biometrics, Human Pose Estimation, Action Recognition, Biomedical Image and Pattern Analysis, and General Vision AI Applications.

Proceedings of International Conference on Big Data, Machine Learning and Applications Ripon Patgiri, Sivaji Bandyopadhyay, Valentina Emilia Balas, 2021-03-22 This book covers selected high-quality research papers presented at the International Conference on Big Data, Machine Learning and Applications (BigDML 2019). It focuses on both theory and applications in the broad areas of big data and machine learning. It brings together the academia researchers

developers and practitioners from scientific organizations and industry to share and disseminate recent research findings

Brain-Computer Interfaces Ayman S. El-Baz, Jasjit S. Suri, 2024-11-05 Advances in Neural Engineering Brain Computer Interfaces Volume Two covers the broad spectrum of neural engineering subfields and applications The set provides a comprehensive review of dominant feature extraction methods and classification algorithms in the brain computer interfaces for motor imagery tasks The book s authors discuss existing challenges in the domain of motor imagery brain computer interface and suggest possible research directions The field of neural engineering deals with many aspects of basic and clinical problems associated with neural dysfunction including sensory and motor information stimulation of the neuromuscular system to control muscle activation and movement analysis and visualization of complex neural systems and more Presents Neural Engineering techniques applied to Signal Processing including feature extraction methods and classification algorithms in BCI for motor imagery tasks Includes in depth technical coverage of disruptive neurocircuitry including neurocircuitry of stress integration role of basal ganglia neurocircuitry in pathology of psychiatric disorders and neurocircuitry of anxiety in obsessive compulsive disorder Covers neural signal processing data analysis and neuroprosthetics applications including EEG based BCI paradigms EEG signal processing in anesthesia neural networks for intelligent signal processing and a variety of neuroprosthetic applications Written by engineers to help engineers computer scientists researchers and clinicians understand the technology and applications of signal processing

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