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Although continuous positive airway pressure (CPAP) is highly efficacious in the elimination of nocturnal apneas and hypopneas of obstructive sleep apnea (OSA), suboptimal adherence to treatment is common. Investigations of CPAP adherence reveal frequent adverse effects, and weak relationships between personality factors, OSA severity, symptoms, and CPAP use. Several well-conducted studies of mechanical interventions to overcome CPAP disadvantages have reported success; however, corresponding increase in adherence is not proportional to the reduction in adverse effects. Psychoeducational approaches provide promise for improving adherence, but are currently less rigorously evaluated. As appreciation for behavioral factors and technology increases, additional research is needed to identify which factors, in combination with mechanical interventions, provide the best prescription for CPAP adherence.

<b>Behavioral Sleep Medicine Interventions for Restless Legs Syndrome and Periodic Limb Movement Disorder</b>	<b>487</b>
Wilfred R. Pigeon and Michael Yurcheshen	

Restless legs syndrome (RLS) and periodic limb movement disorder (PLMD) are sleep disorders that are commonly seen in clinical practice. The standard treatment recommendations for these disorders are pharmacologic; both conditions are typically managed with pramipexole or ropinirole, which are approved by the Food and Drug Administration for the treatment of RLS. A mix of behavioral suggestions is included in treatment algorithms for providers and in patient education materials. Although these suggestions have considerable merit, they are typically not delivered as an intervention, but instead provided as a series of helpful tips. There is emerging evidence for providing such suggestions as part of a cognitive-behavioral package to be delivered as active treatments for RLS or PLMD.

<b>Circadian Rhythm Disorders</b>	<b>495</b>
Jamie A. Cvetogros and James K. Wyatt	

Sleep and wakefulness are regulated by two modulatory processes: a homeostatic drive for sleep and a circadian timekeeping system. This article reviews the etiology, diagnosis, and treatment of the circadian rhythm sleep disorders that result from misalignment or dysfunction of these two processes. A review of the homeostatic and circadian regulation of sleep and wakefulness including measurement and modulation of circadian phase is also provided. This article concludes with a brief summary of the literature examining role of circadian factors in insomnia.

**Correlates and Treatments of Nightmares in Adults**

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Brant P. Hasler and Anne Germain

Nightmares, distressing dreams that primarily arise from rapid eye movement sleep, are common in the general population and frequent in clinical populations. The frequency of nightmares and related nightmare distress are linked to sleep disturbance and waking psychopathology. Based on the extant evidence, nightmares appear to be particularly relevant to posttraumatic stress disorder and may even be implicated in its pathophysiology. Significant advances in treatment have occurred in recent years, with effective pharmacologic and psychosocial interventions now available. Despite the progress that has been made, more consistent assessment methods and more rigorous study designs are needed to fully understand the causes and consequences of nightmares.

**Insomnia in Caregivers of Persons with Dementia: Who is at Risk and What Can be Done About It?**

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Susan M. McCurry, Laura E. Gibbons, Rebecca G. Logsdon, Michael V. Vitiello, and Linda Teri

Sleep problems are associated with mood and function disturbances in caregivers of persons with Alzheimer's disease. The factors associated with the onset and maintenance of sleep disturbances in caregivers of persons with dementia are poorly understood, however, and little attention has been paid to treatments to improve sleep in caregivers. This article reviews some of the evidence for the association between caregiver sleep problems, and caregiver and care recipient demographic, health, and psychosocial variables. Data are presented from a longitudinal study that examined factors associated with self-reported sleep problems in dementia caregivers and care recipients over a 5-year follow-up period, and describe the existing caregiver insomnia treatment literature. The article concludes with recommendations for future research.

**Physicians and Sleep Deprivation**

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Robert Daniel Vorona, Ian Alps Chen, and J. Catesby Ware

An increasing body of literature reveals that physician sleep deprivation puts patients and physicians at risk. Rigorous control of work hours per the ACGME improves physician trainee quality of life and probably reduces trainee medical errors. Whether these measures unequivocally reduce patient morbidity and mortality is uncertain. Research that comprehensively elucidates the effects of work hours, sleep hours, and circadian rhythms has the potential to save lives and money by directing data-driven physician work schedules. The effects of these work hour and work schedule limitations on patient and physician outcomes should then be rigorously followed.

**Cognitive Mechanisms in Chronic Insomnia: Processes and Prospects**

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Katherine A. Kaplan, Lisa S. Talbot, and Allison G. Harvey

Evidence is accruing for the importance of cognitive mechanisms in chronic insomnia. This article summarizes and discusses recent evidence on five cognitive processes: worry and rumination, monitoring for threat, misperception of sleep, unhelpful beliefs about sleep, and safety behaviors that prevent disconfirmation of unhelpful beliefs. Emerging prospects garnering clinical and experimental interest in insomnia, including savoring and positive thinking, expectations about sleep, and daytime cognitive processes, are discussed. The article concludes with a discussion of treatment implications.

**Neurobiologic Mechanisms in Chronic Insomnia** 549

Michael Perlis, Phillip Gehrman, Wilfred R. Pigeon, James Findley, and Sean Drummond

This article discusses the notion that insomnia is too often described in solely psychological terms. It is proposed that a comprehensive perspective on insomnia requires one that takes into account the neurobiologic abnormalities that may also function as predisposing, precipitating, and perpetuating factors for chronic insomnia. To justify this claim, the reader is provided with a review of the neurobiology of sleep and wakefulness as it pertains to sleep initiation and maintenance problems, sleep state misperception, and such psychological factors as worry and attention bias. Following the review it is suggested that the temptation to define insomnia solely in neurobiological terms (“of the brain and by the brain”) is also likely to be unproductive. Ultimately both sides of the equation must be taken into consideration and in a way that doesn’t pander to dualism.

**Primary Insomnia: An Overview of Practical Management Using Cognitive Behavioral Techniques** 559

Colin A. Espie and Simon D. Kyle

Primary insomnia is a prevalent disorder of sleep disturbance, impairing daytime functioning and health-related quality of life, leading to increased health care use. This article gives a brief overview of cognitive behavioral therapy as the treatment modality of choice for effectively ameliorating chronic sleep difficulties. Recommended and endorsed cognitive behavioral components are briefly described, and future research directions, focusing on improving the psychological management of insomnia, are outlined.

**Comorbid Insomnia** 571

Bruce Rybarczyk, Hannah G. Lund, Laurin Mack, and Edward Stepanski

This article reviews the theoretical and empirical foundation for the new understanding of comorbid insomnia (CI) as a functional equivalent to primary insomnia. In both cases cognitive behavioral therapy for insomnia (CBT-I) should be considered as a highly efficacious first line of treatment. This article reviews the growing body of evidence supporting CBT-I interventions for CI and new research on methods to reduce barriers to access. Lower cost and more accessible interventions are needed to serve as a first step in a stepped-care model of CI treatment. The article also examines the specific advances in the domains of cancer, depression, and pain disorders.

**Management of Hypnotic Discontinuation in Chronic Insomnia** 583

Lynda Bélanger, Geneviève Belleville, and Charles M. Morin

The management of hypnotic discontinuation after regular and prolonged use may be a challenging task for patients and clinicians alike. Evidence suggests that a stepped-care approach may be a cost-effective approach to assist patients in tapering hypnotics. This approach may involve simple information about the need to discontinue medication; implementation of a supervised and systematic tapering schedule, with or without professional guidance; and cognitive behavioral therapy. Research evidence shows that this approach appears to be promising; further research is, however, necessary to identify treatment and individual characteristics associated with better outcomes.

**Treatment of Late-life Insomnia****593**

Christina S. McCrae, Joseph M. Dzierzewski, and Daniel B. Kay

A variety of factors contribute to the high prevalence of insomnia in later life. Although insomnia can occur as an acute disorder (7 days or less), older adults are often afflicted with chronic insomnia (12 months or more). This article focuses on the conceptualization, assessment, and treatment of late-life insomnia from a behavioral sleep medicine perspective. Evidence for both behavioral and pharmacologic treatment approaches is presented. As is shown, however, late-life insomnia's chronic and comorbid nature make behavioral techniques the preferable treatment approach.

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