THE ARISING

# Tomorrow Begins Before Bedtime

## SLEEP & CIRCADIAN HEALTH



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There is a peculiar problem with sleep advice: its benefits are mostly experienced when we are no longer in bed. We go to sleep to get tomorrow back-to have an attention span that holds, a body capable of working, an appetite we can interpret, and enough patience for the people who share our day. Yet we tend to evaluate sleep through the smallest possible window: last night's number on a wristwatch.

The more useful question is not whether a person achieved an ideal score. It is whether their nights and days are arranged so the body can recover, and whether a treatable disorder is obstructing that recovery. Sometimes the answer is a change in opportunity. Sometimes it is a specific treatment for insomnia. Sometimes it is a breathing disorder. Sometimes the problem sits in the design of a workplace, not the bedroom.

This month brought two substantial reasons to revisit the subject. On **October 24**, the American Academy of Sleep Medicine (AASM) published a new clinical guideline for shift work disorder, supported by a review synthesizing 118 studies suitable for analysis. On **October 29**, a randomized trial reported that a six-week clinician-guided digital insomnia program improved symptoms in 88 people with both insomnia and obstructive sleep apnea, in which breathing repeatedly narrows or stops during sleep. The two developments point toward a common future: sleep care that identifies the mechanism and delivers the appropriate intervention, rather than selling a universal bedtime ritual. S01S02S03

## The night is not a single disease

A person who stays awake finishing work and sleeps five hours may have insufficient sleep opportunity. Someone who protects eight hours in bed but lies awake for half of it may have chronic insomnia. Another person may get eight hours of apparent sleep interrupted by repeated obstructed breathing. A rotating night-shift worker might be biologically alert when an employer expects sleep, and sleepy while driving home. A person waking with pain or urinary symptoms may have yet another problem. These states can overlap; they should not be collapsed into “bad sleep.”

That clinical distinction is more hopeful than a generic exhortation to sleep better. It tells us there are different routes to improvement. Insomnia can respond to behavioral treatment. Obstructive sleep apnea has diagnostic tests and effective symptom treatments. A problem with the circadian rhythm, the body’s roughly 24-hour clock, may require careful light timing and a different arrangement of work and recovery. Treating pain, mood symptoms, restless legs, frequent nighttime urination, medication effects, or an unsafe sleep environment may matter as much as a specialized sleep intervention.

For most adults, a useful starting target remains an opportunity for roughly seven to nine hours of sleep; the consensus minimum is at least seven hours regularly, with individual variation. It is a population recommendation, not a stopwatch threshold that diagnoses harm on a difficult Tuesday. A clinical conversation should ask about daytime functioning, safety, and symptoms-not simply count hours. S15

# The clock has a social life

In northern Argentina, researchers watched the sleeping lives of Toba/Qom communities change between 2012 and 2024. Across more than 12,000 periods of sleep recorded using movement-tracking devices from 156 participants, sleep timing shifted later by close to an hour. In rural groups, sleep shortened by approximately 35 minutes over a decade. Electricity, connected devices and smartphones arrived during that period. But the researchers found that those developments alone did not adequately explain the change; broader social and cultural transitions likely mattered. The peer-reviewed paper first appeared online **October 15, 2026**. S08

That is a richer finding than “screens steal sleep.” A new electric light makes it easier to remain active. A phone makes distant people available. Work, expectations, entertainment, transport and caregiving change around them. A sleep opportunity disappears from a person's life through many small decisions and constraints, some freely chosen and some not. This was an observational study, not a controlled experiment assigning electricity or smartphone ownership. It supports a question about environments, not a single proven causal culprit.

A body clock responds powerfully to light. In people working conventional daytime schedules, morning outdoor light and relatively dim evenings are practical ways to reinforce a stable pattern, though a universal light prescription is not appropriate for every eye disease, mood disorder, medication regimen or atypical schedule. Bright light is not intrinsically “good” at every hour. Its timing determines whether it may help wakefulness or move the body clock earlier or later.

The AASM's new shift-work guideline makes the point forcefully. It offers **conditional** recommendations: options worth considering for the right person, rather than firm recommendations suitable for most patients. These include properly timed bright light, strategically timed caffeine and naps, melatonin for certain sleep disturbances, and selected alertness-promoting medications for diagnosed shift work disorder. For excessive sleepiness associated with the work schedule, evidence for modafinil or armodafinil was judged more certain than that supporting several behavioral strategies-but medicines bring adverse effects and clinical eligibility requirements. The guideline also suggests cognitive behavioral therapy for insomnia (CBT-I), a structured treatment for sleep habits and sleep-related thoughts, for daytime insomnia associated with shift work disorder; confidence in the evidence for that particular use is very low. No intervention abolishes the biological and social costs of a misaligned shift. S01S02

For someone working nights, help may need to come from the workplace as well as the clinic. Rather than hand every night worker the same “sleep hygiene” sheet, ask whether the institution can provide a genuine recovery opportunity, protected rest, safer handoffs, access to an assessment of body-clock problems, and staffing arrangements that do not transfer fatigue from one employee to another. Scheduling reforms should be measured against patient safety and worker outcomes, not assumed beneficial because a shift is shorter.

# Insomnia care that treats insomnia

If someone is exhausted yet unable to sleep, a recommendation to spend more time in bed can backfire. In chronic insomnia, bed and wakefulness may have become tightly associated; vigilance about sleep can itself become part of the problem. The AASM's 2021 guideline **strongly recommends multicomponent cognitive behavioral therapy for insomnia (CBT-I)** in adults with chronic insomnia disorder. CBT-I commonly combines a consistent wake time, rebuilding the connection between bed and sleep, carefully adjusting time in bed, addressing worries about sleep, and planning how to handle returning symptoms. It is a treatment program, not an inspirational list of bedtime tips. S04

A 2024 analysis comparing the ingredients of different treatments brought together 241 randomized trials with 31,452 participants. Addressing unhelpful thoughts about sleep, rebuilding the connection between bed and sleep, and carefully limiting time in bed were linked to a greater chance that insomnia symptoms would fall below the threshold used to define the disorder, called remission. In the analysis's modeled comparison, one high-performing therapist-delivered combination was estimated to bring remission to **33 more people out of every 100** than in-person education alone, a difference of **33 percentage points**. That is a modeled comparison, not a guaranteed result for a particular clinic. Individual treatment ingredients were not separately assigned at random in every trial, and their effects can change when combined. The value of this synthesis is its specificity: education alone is not equivalent to a structured insomnia treatment. S05

Access is the difficulty. Trained therapists are scarce in many communities, and programs require commitment. That makes digital delivery a compelling experiment-but digital should describe how care is delivered, not prove that care works.

A new study published **October 29, 2026** randomized 88 adults with both chronic insomnia and obstructive sleep apnea to six weekly sessions of *clinician-guided* digital CBT-I or sleep-hygiene education. At three months, Insomnia Severity Index scores improved by **9.5** points in the intervention group versus **4.0** points in the comparison group. Pittsburgh Sleep Quality Index scores improved by **4.9** versus **1.8** points. On both symptom questionnaires, lower scores mean fewer problems, so larger falls indicate more improvement. The intervention group also improved in reported sleepiness and some cognitive measures. Immediately after treatment, the apnea-hypopnea index, the number of breathing pauses or reductions per hour of sleep, changed by **−6.0 events per hour** versus **+2.0**. This was an additional outcome, rather than the study’s main test. S03

It is an encouraging test of a hybrid service: structured software plus a clinician. But 88 participants and three months of follow-up are not proof of reduced cardiovascular events, dementia incidence, or durable remission. Participants reported temporarily increased sleepiness in weeks two through four, although no functional impairment or sleepiness-related adverse events were reported. Safety oversight remains important when a participant drives, operates equipment or already has untreated apnea. Nor should the

observed apnea-index change be mistaken for a replacement of positive airway pressure (PAP) therapy, which uses a mask and pressurized air to keep the airway open, when that treatment is indicated.

For a person seeking help, a useful service would identify people who may need sleep testing, offer appropriate CBT-I referral or clinician-guided care, measure symptoms and actual function, and document adverse effects or failures. An app could support diaries, reminders, and clinician review-but its purpose would be treatment delivery and interpretation, not simply keeping people opening the app.

## Apnea: symptom relief and unanswered prevention questions

Obstructive sleep apnea is common, measurable and treatable. Positive airway pressure can relieve snoring and sleepiness, and markedly reduce obstructive breathing events while worn. That matters: feeling rested and functioning better are outcomes in their own right. But claims about long-term prevention demand separate evidence.

The large SAVE trial randomized **2,717** adults with moderate-to-severe apnea and existing heart or brain blood-vessel disease to continuous positive airway pressure (CPAP) plus usual care or usual care alone. Over an average of **3.7 years**, the combined measure of major heart-and-blood-vessel events occurred in **17.0%** versus **15.4%**, a hazard ratio of **1.10 (95% CI 0.91-1.32)**. Put simply, about 17 in 100 people in the CPAP group had an event, compared with about 15 in 100 receiving usual care. The hazard ratio compares how quickly events occurred; 1 means no difference. The 95% confidence interval (CI) is an uncertainty range under the analysis's assumptions. Here, 0.91-1.32 includes both a lower and a higher event rate, so this trial did not establish a prevention benefit. CPAP reduced snoring and daytime sleepiness and improved mood and quality-of-life measures. Average adherence was **3.3 hours per night**, and participants were predominantly men with relatively little sleepiness. The result cannot be generalized to every type of apnea or level of treatment use, but it limits the claim that treating apnea automatically prevents recurrent major cardiovascular events. S06

Some newer work examines measurable signs of blood-vessel lining health and the depth and duration of low oxygen during sleep. Such measures may help specify which mechanisms respond and which patients have residual risk. Those measurements can help researchers, but improving a laboratory result does not by itself show that a treatment prevents a heart attack or stroke. A 2026 report from the RICCADSA trial, for example, suggests selective changes in one molecule involved in cells sticking to blood-vessel walls with CPAP but not across all tested vascular markers. Those results suggest questions for future trials; they do not establish fewer heart attacks or strokes. S12

For clinical care, the better questions are concrete: How sleepy is the person? What is the breathing disorder? Is treatment being used comfortably? Does blood pressure, attention, morning headache, partner sleep, quality of life or safety improve? Is the device usable month after month? A treatment that works only on the nights it is worn needs support and troubleshooting, not a shame-based compliance dashboard.

## Sleep is part of metabolism-and recovery

The boundaries between sleep, eating and training are porous. In a 2022 randomized trial, 80 young adults with overweight who habitually slept less than 6.5 hours were assigned either to a sleep-extension counseling intervention or to maintain their usual habits. The intervention group increased sleep by approximately **1.2 hours per night**, relative to controls, over two weeks. Estimated energy intake fell by **270 kilocalories per day** versus controls (95% CI −393 to −147), despite no prescribed diet or exercise intervention. The uncertainty range was about 147-393 fewer calories a day. Here “kilocalories” means the calories shown on food labels. This was an average difference between groups, not a calorie target for each person. S07

That result is exciting because it shows a short-term causal effect on behavior outside the bedroom. It does not establish that prescribing extra sleep causes lasting weight loss in older adults, reverses diabetes, or extends life. It tells us not to assume that appetite is independent of the hours available for recovery.

Exercise offers a parallel question. A small 2026 crossover experiment had 25 young adults try both conditions in a randomly assigned order: normal sleep and one night limited to 40% of their usual sleep duration. At 60 minutes of moderate cycling, the estimated amount of blood pumped by the heart each minute was lower after partial sleep deprivation, **11.5 versus 12.3 liters per minute**, while blood pressure was not significantly different. This is a physiological response during a controlled exercise challenge, not proof that a missed night causes a cardiovascular event or predicts long-term athletic performance. S13

For someone deciding how to train after a poor night, the distinction matters: a change in one heart measurement is not the same as evidence about performance, injury risk, or long-term fitness. Those questions need their own studies.

## The aging brain needs more than a sleep score

No sleep intervention has yet earned the claim that it reliably prevents Alzheimer's disease. The distinction is essential because sleep and circadian biology are among the most tempting areas in which to leap from mechanism to promise.

A 61-person randomized trial published in July 2026 tested tailored home light exposure over 24 weeks in people with mild cognitive impairment. Memory subscale performance improved more with active light than placebo (**p = 0.035**), and several light and sleep measures favored treatment. The P value measures how surprising the result would be if there were no treatment difference, under the analysis’s assumptions. It does not tell us how large or lasting a memory benefit is. This report does not establish lasting protection of everyday abilities, fewer dementia diagnoses, or a light setting consumers can reliably use at home. It is a modest but meaningful reason to study the environment as part of supportive cognitive care. S09

A prospective analysis of 995 initially dementia-free older adults in the National Health and Aging Trends Study associated frequent napping with subsequent dementia classification (**hazard ratio 1.48; 95% CI 1.14-1.94**). Unintentional naps were also associated with subsequent risk; intentional napping was not. The hazard ratio suggests a 48% higher rate of classification as possible or probable dementia over time in frequent nappers, with an uncertainty range from 14% to 94% higher. It does not mean 48% of nappers developed dementia. This does **not** show that a nap causes dementia. Emerging cognitive disease, fragmented sleep, medications and other illness may contribute to both the napping pattern and the subsequent dementia classification. Treat unplanned daytime sleepiness as a potential clue worth investigating, not as a behavior to suppress by force. S10

At Washington University, the registered Sleep Trial to Prevent Alzheimer's Disease (SToP-AD, NCT04629547) is studying whether treatment with suvorexant can slow brain amyloid accumulation. As of the registry's **July 13, 2026** posted update, it was **recruiting**, with a planned enrollment of 120 and **no posted results**. Its primary interest is a biological outcome. Even a positive biomarker result would need additional work before anyone could conclude that the approach prevents dementia. S14

The path forward in brain health is plural: make sleep problems diagnosable and treatable; care for vascular risk, hearing, mobility and mood; protect daily function; and investigate disease biology rigorously. In dementia care, a calm evening, a less distressed caregiver and a safer night can matter now even without a cure.

## The new instruments must justify themselves

Wearables and AI can observe patterns at a scale that was once impractical. A 2026 study trained an AI system on overnight electrocardiogram (ECG) recordings of the heart’s electrical activity and sleep stages in **15,809** people and tested it in separate groups of **9,810** and **12,576**. Its output was associated with later cardiovascular diagnoses and mortality after adjustment for specified risk factors and sleep characteristics. The pattern held in separate groups, which makes it more promising as a way to estimate future risk. Researchers used existing health records to find out what later happened to participants. S11

Yet a model that predicts an event is not automatically a model that helps prevent it. Before trusting such an alert, a patient or clinician needs to know whether it adds useful information beyond ordinary clinical checks, how many people would be flagged, how it performs in older patients and underrepresented groups, what clinical action follows, and whether the action changes an outcome. An inaccurate alert costs attention; a correct but unactionable alert can cost it too.

The technical rule is simple to state and demanding to fulfill: show how often the device gets measurements wrong, whether its risk estimates match what happens, whether it works in new groups of people, when it triggers an alert, and whether acting on that alert helps more than it harms. A wearable's nightly “recovery score” is not a substitute for clinical assessment of insomnia, apnea, depression, pain, medication effects or excessive sleepiness.

## A life needs nights and days

Sleep is often marketed as personal optimization. That leaves too many people outside the story: a nurse finishing a night shift, a parent caring for a child, a person caring for a spouse with dementia, someone whose apartment is hot and noisy, or a patient whose illness interrupts sleep no matter how thoughtfully the bedroom has been arranged. Their sleep may not be improved by more discipline. It may require access, treatment or help from other people.

Research gives us ways to be specific and compassionate at the same time. It can show when digital care reaches an otherwise underserved person. It can show which sleep interventions relieve symptoms and which have not prevented outcomes such as heart attacks and strokes. It can identify why an employee's biological clock and assigned work disagree. It can make us ask whether a person is safer on the road, more capable in the afternoon and less exhausted by the end of the week.

The goal is not to win sleep. It is to wake with more of a life available to live. And because those days are lived with other people, sleep health belongs not only in a bedroom, but in medicine, community, work and the design of care itself.

## Sources and further reading


• **S01** - Management of shift work disorder: AASM clinical practice guideline

• **S02** - Management of shift work disorder: AASM systematic review and GRADE

• **S03** - Clinician-guided digital CBT-I in comorbid insomnia and OSA

• **S04** - AASM behavioral psychological treatments for chronic insomnia

• **S05** - Components and delivery formats of CBT-I: component network meta-analysis

• **S06** - SAVE CPAP cardiovascular outcomes randomized trial

• **S07** - Sleep extension and energy intake in overweight adults

• **S08** - Toba/Qom longitudinal sleep timing changes

• **S09** - Tailored light trial in mild cognitive impairment

• **S10** - NHATS napping characteristics and dementia

• **S11** - Overnight ECG plus sleep stages predicting cardiovascular outcomes

• **S12** - RICCADSA randomized cohort CPAP biomarkers secondary analysis

• **S13** - Partial sleep deprivation and exercise cardiac output

• **S14** - SToP-AD Sleep Trial to Prevent Alzheimer Disease

• **S15** - AASM/SRS adult sleep-duration consensus statement


Read more in The Arising magazines and the Atlas.