

# SINGAPORE SLEEP REVIEW

SINGAPORE SLEEP SOCIETY NEWSLETTER

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## SSS NEWS

We are wishing all our members and readers a prosperous Lunar New Year. In this February issue of the Singapore Sleep Review we have collated recent research from our Singapore sleep science and medicine community. 2026 has gone off to a good start with research publications in diverse topics. In this issue we present two randomized controlled trials in OSA treatment. Furthermore, we discuss studies on OSA in taxi drivers, bedtime procrastination in college students, and cross-cultural differences in

sleep patterns in school children across Singapore, China, and the US. Besides the science, we are happy to announce the recent launch of the 'Night Mode On' podcast, and initiative by The Air Station supported by the SSS. We are also looking forward to the World Sleep Day webinar event organised by the SingHealth Duke-NUS Sleep Centre, and we can cautiously reveal that the Singapore Sleep Congress 2026 is in the works. All in all, a lot to look forward to in this new year.



## CPAP & WEIGHT GAIN

Weight gain after CPAP initiation due to fat-free mass

## ORAL APPLIANCES

Comparing CPAP and mandibular advancement treatment of OSA

## OSA & TAXI DRIVERS

High prevalence and low treatment adherence in Singapore taxi drivers

## NIGHT MODE ON

The new sleep health podcast by The Air Station

## COLLEGE STUDENTS

Bedtime procrastination in residential college students

## SCHOOL CHILDREN

Cross-cultural comparison of structural and family factors in school-aged children's sleep



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## CPAP and Weight Gain

Reference: Lee, et al. (2026). Continuous positive airway pressure effects on energy expenditure, intake, hormonal regulation, and body composition: a randomized trial. SLEEPJ, 49, 1–11. <https://doi.org/10.1093/sleep/zsaf259>

Although OSA is often associated with overweight, paradoxically, initiation of CPAP treatment can be followed by weight gain. It is not fully known whether this weight gain is driven by increased caloric intake, reduced physical activity, or other factors. A two-center, open-label randomized trial tackled this question in adults with moderate-to-severe OSA (AHI  $\geq 15/h$ ).

Participants were randomized to 12 weeks of auto-CPAP or an inactive control. The primary outcome was resting energy expenditure (REE) measured by indirect calorimetry. The team also assessed physical activity (Actiwatch activity counts and IPAQ-SF), dietary intake (3-day photographic food diaries with macronutrient breakdown), eating behavior (Three-Factor Eating Questionnaire R-18), body composition (bioelectrical impedance), and appetite-regulatory hormones.

Results showed that CPAP did not change REE. In intention-to-treat analysis, the baseline-adjusted CPAP vs control difference was 8.6 kcal/day. Physical activity also showed no meaningful between-group difference, whether captured objectively (activity counts) or by questionnaire. Yet weight did shift. CPAP was associated with a significant rise in evening body weight (+1.5 kg vs control) and increases in BMI measured in both morning and evening (+0.5 to +0.6 kg/m<sup>2</sup>). The nuance—and the clinical takeaway—was in body composition: CPAP increased fat-free mass (FFM) by +1.5 kg, while fat mass (total, visceral, and subcutaneous) did not significantly change.

In addition, total calory intake was higher by 144 kcal/day in the CPAP group versus control, but this was not statistically significant ( $p=.283$ ). Still, the hormonal and behavioral signals leaned toward a subtle positive energy balance: CPAP increased acylated ghrelin (+107.8 pg/mL) and IGF 1 (+12.7 ng/mL), reduced cortisol (-1.6  $\mu\text{g/dL}$ ), and lowered cognitive restraint on eating (-2.1). Metabolic markers including lipids, glucose metrics, insulin resistance, and leptin were not significantly altered.

In clinical practice, these findings may help reframe early post-CPAP weight change: body weight may increase even without reduced physical activity or resting energy expenditure, and importantly, without increased fat mass. Monitoring body composition can prevent unnecessary alarm, improve counseling, and support adherence during early follow-up visits. This also provides a practical basis to proactively discuss appetite and eating-behavior changes after CPAP initiation.

**Conclusion:** In this 12-week randomized trial, CPAP therapy in adults with moderate-to-severe OSA was associated with modest increases in body weight and BMI, occurring predominantly alongside an increase in fat-free mass rather than fat mass. These changes were observed without measurable effects on resting energy expenditure or physical activity, and without statistically significant differences in reported caloric intake. The accompanying shifts in appetite-regulatory hormones and eating behavior suggest a subtle positive energy balance, underscoring the clinical value of monitoring body composition in follow-up.

### SLEEP STUDY SERVICES HST & Polysomnography



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# Oral appliance and CPAP treatment of OSA

Reference: Colpani, et al. (2026). Mandibular Advancement Device versus CPAP in Severe Obstructive Sleep Apnea. *Journal of Dental Research*, 105(1), 112–119. <https://doi.org/10.1177/00220345251361796>

Continuous positive airway pressure (CPAP) remains the standard therapy for severe obstructive sleep apnea (OSA). However, clinical management is frequently constrained by tolerability and adherence, raising the practical question of whether alternative therapies can deliver comparable clinical benefits. A prespecified substudy of the randomized CRESCENT trial addresses this question in a population where cardiovascular risk is central: adults with hypertension, high cardiovascular risk, and severe OSA.

In this open-label randomized trial, 144 participants with severe OSA defined by AHI  $\geq 30$  events/h were allocated to either a custom-made adjustable mandibular advancement device (MAD; n=73) or auto-CPAP (n=71) for 12 months, following a 1-month acclimatization phase. Participants were recruited from internal medicine and cardiology settings, and consistent with that context, approximately two-thirds were nonsleepy (Epworth Sleepiness Scale  $\leq 10$ ) at baseline. OSA severity was substantial: median baseline AHI was 44.0/h in the MAD group and 50.7/h in the CPAP group.

As expected, CPAP achieved markedly greater physiological suppression of OSA. At 6 months, residual AHI decreased to a median of 20.9/h with MAD and 2.1/h with CPAP. The proportion achieving AHI  $< 5$ /h was 5.2% in the MAD arm versus 92.3% in the CPAP arm, although the majority of MAD-treated participants still achieved a  $\geq 50\%$  reduction in AHI at 6 months. Both therapies improved sleep-related quality of life, although CPAP produced a statistically greater improvement in ESS.

Adherence patterns, however, differed in a clinically meaningful way. Median nightly usage was 5.4 hours for MAD (with 56.1% achieving  $\geq 6$  hours/night among those with available adherence data) compared with 4.9 hours for CPAP (with 28.3% achieving  $\geq 6$  hours/night). The principal outcome of this substudy was 24-hour ambulatory blood pressure (BP), with particular attention to asleep BP given its prognostic relevance. Over 12 months, MAD was associated with reductions in several BP indices, including asleep parameters: asleep mean BP decreased by -4.7 mm Hg, asleep systolic BP by -2.0 mm Hg, and asleep diastolic BP by -4.0 mm Hg. In contrast, the CPAP arm showed increases in most ambulatory BP components over follow-up (except asleep diastolic BP). Between-group analyses favored MAD for asleep mean BP (-3.70 mm Hg) and asleep systolic BP (-4.78 mm Hg).

No significant between-group differences were reported for cardiac MRI outcomes, ambulatory ECG rhythm outcomes, or cardiovascular biomarkers. Adverse effects differed by treatment modality, with MAD commonly associated with dry mouth, jaw pain, and teeth discomfort, while CPAP was frequently associated with dry mouth, air leakage, and nasal congestion. Taken together, the differential BP effects, adherence profiles, and side-effect patterns provide clinically relevant inputs for shared decision-making when selecting first-line therapy for severe OSA in hypertensive, high-risk patients.

**Conclusion:** In hypertensive patients with severe OSA and high cardiovascular risk, MAD therapy resulted in statistically greater improvements in asleep BP than CPAP at 12 months, despite substantially less reduction in AHI. These findings support consideration of MAD as an effective therapeutic option for selected severe OSA patients, particularly when sustained nightly adherence and cardiovascular risk modification are primary clinical objectives.



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## CPAP treatment of OSA in taxi drivers

Reference: Chan, Y. H., Kosasih, A. M., Kok, V., Ou, Y.-H., Chng, Y. J. C., Gooley, J. J., & Lee, C.-H. (2026). Prevalence of Obstructive Sleep Apnea and Adherence to CPAP for TAXI Drivers. *Clocks & Sleep*, 8(1), 4. <https://doi.org/10.3390/clockssleep8010004>

Commercial drivers are a clinically important but difficult-to-treat group for obstructive sleep apnea (OSA), given irregular schedules, short sleep opportunity, and the public-safety implications of sleepiness. A recent study examined OSA prevalence among older taxi drivers in Singapore and assessed the efficacy of CPAP therapy.

The investigators recruited 32 taxi drivers aged 60 years and above from a taxi company to undergo overnight polysomnography. OSA was diagnosed if the apnea-hypopnea index (AHI) was at least 15 events per hour (moderate-to-severe OSA), or if AHI was 5–15 events per hour with an Epworth Sleepiness Scale (ESS) score of 10 or higher (mild OSA with sleepiness). Drivers without OSA were considered to have completed the study, while those with OSA proceeded to baseline cardiovascular and vigilance testing and were provided CPAP.

Among the 32 drivers studied, 22 (68.8%) were diagnosed with OSA. The median age was 63.0 years, 21 out of 22 were male, the median body mass index was 27.7 kg/m<sup>2</sup>, and the median AHI was 35.1 events per hour. Most cases were clinically significant, with 90.9% (20/22) classified as moderate-to-severe OSA and only 9.1% (2/22) classified as mild OSA. Cardiometabolic comorbidity was common in this cohort: hypertension was present in 63.6%, hyperlipidemia in 59.0%, and type 2 diabetes in 40.9%. Daytime sleepiness levels were generally mild, with small proportions classified as mildly, moderately, or severely sleepy on the ESS.



At the 6-month follow-up, 18 participants completed the study. CPAP adherence was poor: only 23.5% (4/17) met the adherence definition (use for at least 4 hours per day on at least 70% of days), with average usage of  $3.1 \pm 2.3$  hours per night. Over 6 months, there were no significant changes in BP outcomes, including 24-hour mean systolic ambulatory BP (125.9 to 126.0 mmHg;  $p = 0.93$ ), office systolic BP (135.6 to 132.1 mmHg;  $p = 0.39$ ), awake systolic BP (127.9 to 128.2 mmHg;  $p = 0.83$ ), or asleep systolic BP (121.3 to 120.8 mmHg;  $p = 0.82$ ).

Objective vigilance also did not improve. Performance on a 10-minute psychomotor vigilance test (reaction times and lapses) was unchanged after CPAP treatment. The authors also report no significant association between CPAP adherence or usage time and BP outcomes at 6 months.

**Conclusion:** the findings point to a dual challenge in older taxi drivers: a high prevalence of moderate-to-severe OSA, and suboptimal CPAP adherence that may limit measurable downstream benefits in BP control or vigilance over a 6-month period.



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## Night Mode On: The new sleep health podcast



So far, three episodes have been released:

- [Episode 1, Sleep Myths You Should Stop Believing](#)
- [Episode 2, Sleep in Kids & Teens](#)
- [Episode 3, Insomnia](#)

Each episode explores a different topic in sleep health with experts from the medical, health care, and scientific fields. Dr Phua Chu Qin, SSS treasurer and senior consultant in Otorhinolaryngology/ENT at Sengkang General Hospital explains: "Promoting public education is one of the goals of the SSS. Podcast offers a medium for us to deliver high quality, specialized, on-demand content to everyone in a more relatable and engaging way. By engaging in this effort, we hope to increase public awareness and contribute evidence-based sleep health information".

Click on the icon to find the Night Mode On podcast on:



YouTube



Spotify

Those who follow the SSS on social media may have seen the announcements already. Since December 2025 the SSS has been involved in a podcast series to bring sleep health education to the public. "Night Mode On" is a monthly podcast, produced by [The Air Station](#) in collaboration with the SSS that aims to make the science of sleep simple and relatable. Geraldine Tan, Regional Marketing Manager at The Air Station explains: We started Night Mode On because we saw a gap between expert sleep knowledge and what people actually understand. Our hope is to make those conversations simpler, relatable, and easier to act on".



Dr. Phua Chu Qin demonstrating CPAP machine on the Night Mode On podcast



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# Bedtime Procrastination in Residential College Students

Reference: Kok, et al. (2026). Going to bed later than intended is associated with shorter sleep and poorer next-day mood and sleepiness in residential college students. *Sleep*. <https://doi.org/10.1093/sleep/zsaf414>

Residential college life offers autonomy over bedtime - and abundant opportunities to delay it. In an uncorrected manuscript in *SLEEP* (2026), Kok et al. examined "going to bed later than intended" as a day-to-day behavior in students living in a residential college at the National University of Singapore and tested how these delays relate to objective sleep and wellbeing.

The study followed 104 undergraduate students (2-week monitoring during the school term) using actigraphy to estimate sleep timing and duration, alongside daily diaries capturing whether students went to bed later than intended, next-morning mood/affect, and daytime sleepiness. Students reported delaying bedtime on 53.8% of nights (709 of 1,318 nights), and 99% did so at least once. The most common reasons were losing track of time (32.6%), wanting "me" time (20.0%), not feeling tired yet (16.9%), and social leisure activities (in-person 15.1%, online 14.4%).

Delaying bedtime carried a clear sleep cost. On school nights, within-person comparisons showed sleep onset was later by about an hour, while wake time did not meaningfully shift, shortening sleep by 1.02 hours on average (7.28 h vs 6.26 h). Linear mixed models adjusted for demographics, chronotype, and class start time estimated sleep to be 0.91 hours shorter on nights with bedtime delay. On non-school nights, students still did not fully "sleep in": bedtime delay shortened sleep by 0.84 hours in paired analyses, and by 0.86 hours in adjusted models, despite a modest later wake time.



These nightly delays were not benign. On days after delaying bedtime, students reported higher negative morning mood, lower positive affect, and greater difficulty staying awake during daytime activities. Beyond nightly effects, students who delayed bedtime more frequently reported poorer baseline wellbeing: delay frequency correlated with poorer sleep quality, higher pre-sleep arousal, higher perceived stress, and higher depression scores. Notably, delay frequency was not correlated with chronotype, suggesting the behavior extends beyond "late types".

**Conclusion:** Going to bed later than intended is common and costs students about an hour of sleep, with immediate next-day consequences. This happens even on nights when they have the opportunity to sleep in. In this residential college sample, bedtime delay occurred on ~half of nights and was followed by worse morning mood and greater daytime sleepiness. Clinically and operationally, it identifies bedtime procrastination as a practical, modifiable target for sleep and mental health interventions in university settings.



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# Cross-cultural differences in sleep in school-aged children

Reference: Deng, Y., Koa, T. B., Miao, Z., Hu, Y., Su, Y., & Lo, J. C. (2025). Factors of sleep pattern in school-aged children: A cross-cultural investigation. *Sleep Medicine*, 135, 106769. <https://doi.org/10.1016/j.sleep.2025.106769>

School-aged children often accumulate substantial weekday sleep debt, but the drivers may differ across cultures. In *Sleep Medicine* (2025), Deng et al. surveyed parents of 653 children in Singapore, China, and the United States (ages 7–12 years). Especially, the researchers compared weekday versus weekend sleep patterns and examined links with school start times (SSTs) and parent-related factors (sleep hygiene, sleep priority, and parental sleep timing).

Across all three countries, weekday schedules consistently curtailed sleep: compared with weekends, children went to bed 26–63 minutes earlier, woke 59–124 minutes earlier, and slept 27.6–61.8 minutes less (all  $p < 0.001$ ). Weekend sleep duration was similar across countries at about 9 and a half hours. On weekdays, difference in school start times (average around 07:30 SG, 08:00 China, 08:30 US) aligned with earlier wake times and significantly shorter total sleep time across countries.

When looking at household practices, Singaporean families were most likely to have a parent-set bedtime (92%, vs 81% US, 67% China). Chinese kids were the least likely to use electronic screens before sleep, while US children were the most likely to have their phones in the bedroom and use them (15%, vs 7% China, 5% SG). US kids were also the most likely to drink 2 or more cups of caffeine a day (34%, vs 13% SG, 3% China).



Interesting differences emerged when parents were asked about 'sleep priority', i.e. their willingness to let their kids sacrifice sleep for other activities. Chinese parents were most willing to trade sleep for studying, with only 18% of parents not allowing any sleep sacrifice (vs 27% in Singapore and 19% in the US). The US was most permissive for co/extra-curricular activities, gaming, and TV/videos. For social media, Singaporean parents were most restrictive (82% did not allow any sleep sacrificed for social media), while China was most permissive (56% no allowance).

**Conclusion:** Later school start times emerged as the most consistent correlate of longer weekday sleep across cultures. Family routines also aligned with children's sleep timing, supporting policy and household-level interventions.

**Disclaimer:** This publication is not intended as a replacement of regular medical education. The reviews are a summarized interpretation of the published studies and reflect the opinions of the writer rather than those of the research group or the scientific journal. It is suggested that the reader reviews the full trial data before forming a final conclusion on its merits.

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## Sleep Across Various Age Groups - How Aging Affects Sleep

**Dr Tushar Gosavi Divakar**  
Senior Consultant  
Department of Neurology (SGH Campus)  
National Neuroscience Institute



## When Insomnia Becomes Chronic - What's It About?

**Dr Leonard Eng**  
Consultant  
Department of Psychiatry  
Singapore General Hospital



## Understanding the Role of Orofacial Myofunctional Therapy in the Management of Obstructive Sleep Apnoea

**Mr Desmond Chia**  
Sleep Physiologist  
Sleep Centre  
Singapore General Hospital



## Updates in Surgical Treatment of Snoring and OSA

**Dr Adele Ng**  
Associate Consultant  
Department of Otorhinolaryngology -  
Head & Neck Surgery  
Singapore General Hospital



## Moderator

**Asst Prof Leow Leong Chai**  
Head & Senior Consultant  
SingHealth Duke-NUS Sleep Centre  
  
Director  
Sleep Centre  
Singapore General Hospital  
  
Senior Consultant  
Department of Respiratory and  
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## CALENDAR

**8-11 APR**

### **IPSA 2026**

*The 9th congress of the International Pediatric Sleep Association*  
Florence, Italy, <https://www.pedsleep.org/meeting-2026>

**14-17 JUN**

### **Sleep 2026**

*The 40th annual meeting of the Associated Professional Sleep Societies, LLC (APSS)*  
Baltimore, MD, USA, <https://www.sleepmeeting.org>

**20-23 OCT**

### **Sleep Europe 2026**

*The 28th Congress of the European Sleep Research Society*  
Maastricht, the Netherlands, <https://esrs.eu/event/sleep-europe-2026/>

**11-14 NOV**

### **Sleep Down Under 2026**

*The Annual meeting of the Australasian Sleep Society*  
Brisbane, Australia, <https://www.sleep.org.au/Public/Public/Events/SDU2026.aspx>

**13-14 NOV**

### **Save the Date Singapore Sleep Conference 2026**

More information to follow soon

## Singapore Sleep Society

### Membership Application and Fees

#### *Ordinary members*

\$30/year – sleep professionals with a medical degree, PhD or equivalent.

#### *Associate members:*

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