

Sleep Apnoea & Dentistry — How Oral Appliances Can Help

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Description:

Oral appliances can treat mild to moderate sleep apnoea. Learn how mandibular advancement devices work, who they suit and CSSC Melbourne's approach.

Details:

Collins Street Specialist Centre — Sleep apnoea & dentistry: how oral appliances can help

The connection between dentistry and sleep medicine runs deeper than most patients expect. Dentists are often among the first clinicians to spot the clinical signs of obstructive sleep apnoea (OSA), and custom-fabricated oral appliances are an established, evidence-based treatment option for a significant proportion of patients.

Collins Street Specialist Centre is a multidisciplinary specialist practice whose team includes oral and maxillofacial surgeons and prosthodontists with specific expertise in sleep-related breathing disorders. Whether you have a formal OSA diagnosis or are just starting to investigate symptoms, understanding the dental side of this condition may open treatment avenues you haven't yet considered.

What is obstructive sleep apnoea?

Obstructive sleep apnoea involves repeated collapse or obstruction of the upper airway during sleep, causing breathing to stop for ten seconds or more. These pauses — apnoeas — can occur dozens or even hundreds of times per night, each one briefly dropping blood oxygen levels and fragmenting sleep.

OSA severity is measured using the apnoea-hypopnoea index (AHI), which counts breathing disturbances per hour of sleep:

- **Mild OSA:** 5–15 events per hour - **Moderate OSA:** 15–30 events per hour - **Severe OSA:** More than 30 events per hour

OSA affects an estimated 9–38% of adults, with higher rates amongst men, older adults and those carrying excess weight. Despite this, the condition is substantially underdiagnosed — many people live with it for years without ever knowing.

Signs your dentist might identify

Because dentists examine the oral cavity, jaw and associated airway structures as a matter of routine, they're well placed to recognise OSA risk factors and clinical indicators during standard appointments.

Tooth grinding (bruxism)

There's a well-documented association between OSA and sleep bruxism. One prevailing hypothesis is that grinding is a physiological attempt to reopen the airway by pushing the mandible forward during sleep. Significant tooth wear observed during a dental examination may reasonably prompt a conversation about sleep quality and breathing patterns.

Scalloped tongue

Lateral indentations along the tongue margin — caused by the tongue pressing against the teeth — can indicate a tongue that's large relative to the available oral space. This is a recognised risk factor for upper airway obstruction.

Tongue and tonsil size

A routine oral examination allows assessment of tongue volume relative to the oral cavity using the Mallampati classification, as well as identification of tonsillar enlargement — both of which can contribute to airway compromise during sleep.

Narrow palate or retrognathic jaw

A high, narrow palatal vault or a mandible positioned further back than ideal (retrognathia) reduces upper airway dimensions. These are anatomical characteristics dentists assess regularly, and both carry implications for sleep-disordered breathing.

Pharyngeal inflammation

Chronic snoring and habitual mouth breathing can produce visible inflammation of the soft palate and posterior pharyngeal tissues — changes that may be apparent during a standard dental examination.

Dry mouth

Mouth breathing during sleep — common amongst those with OSA — produces chronic dry mouth. Dentists often recognise this pattern through characteristic changes in carious activity and oral mucosal presentation.

The symptoms you may be experiencing

Alongside the clinical signs your dentist may observe, the symptoms you notice in daily life carry equal diagnostic weight:

- Loud, habitual snoring (frequently reported by a bed partner) - Witnessed apnoeic episodes during sleep - Gasping or choking sensations that rouse you from sleep - Excessive daytime sleepiness despite apparently adequate sleep duration - Morning headaches - Impaired concentration or memory difficulties - Irritability or mood disturbance - Nocturia (frequent nocturnal waking to urinate) - Reduced libido

If several of these sound familiar, it's worth raising them with your GP or dentist. OSA carries consequences well beyond disrupted sleep — left untreated, it's associated with significantly elevated risk of hypertension, cardiovascular disease, cerebrovascular events, type 2 diabetes and motor vehicle accidents.

Diagnosis: the sleep study

A formal OSA diagnosis requires a sleep study (polysomnography), conducted either in an accredited sleep laboratory or via validated portable monitoring devices used at home. The study records brain activity, eye movements, muscle activity, cardiac rhythm, airflow, respiratory effort and blood oxygen saturation throughout the sleep period.

A referral for a sleep study is typically initiated by a GP or sleep physician, though it's not uncommon for a dentist — having identified relevant clinical signs — to be the one who first raises the possibility of investigation.

Treatment options for OSA

CPAP — the established first-line treatment

Continuous positive airway pressure (CPAP) is the most effective treatment for moderate to severe OSA. It involves wearing a mask over the nose, or nose and mouth, during sleep; the mask connects to a device that delivers a continuous stream of pressurised air to keep the airway open.

CPAP works well when used consistently. Adherence, however, is a genuine clinical challenge. Research consistently shows that 30–50% of patients can't use CPAP regularly, citing discomfort, mask fit problems, claustrophobia, noise, nasal congestion or the practical burden of the equipment — particularly when travelling.

Oral appliances — the dental contribution to sleep medicine

This is where dental expertise becomes directly relevant. Mandibular advancement devices (MADs) — also called mandibular advancement splints (MAS) — are custom-fabricated oral appliances worn during sleep that hold the mandible in a protruded position, preventing the tongue and pharyngeal soft tissues from collapsing into the airway.

How mandibular advancement devices work

A MAD has two components — one seated over the upper teeth and one over the lower — joined by a mechanism that holds the jaw forward. The degree of advancement is adjustable in small incremental steps, allowing the clinician to find the position that resolves symptoms without producing jaw discomfort.

By advancing the mandible, the device achieves several mechanical effects:

- Increases the retrolingual and retropalatal airway dimensions
- Increases tension in the upper airway soft tissues and musculature, reducing their tendency to collapse
- Reduces soft palate vibration, which in turn diminishes snoring

Who are oral appliances appropriate for?

Current clinical guidelines support oral appliances in the following situations:

- Mild to moderate OSA as a primary treatment
- Severe OSA where CPAP is not tolerated or declined
- Primary snoring without significant apnoea
- Combination therapy alongside CPAP in selected cases

The best candidates generally have adequate dentition to support and retain the device, sufficient mandibular mobility, no significant temporomandibular joint (TMJ) dysfunction, and a preference for something less intrusive than CPAP. Frequent travellers also tend to find the portability of an oral appliance a practical advantage over CPAP equipment.

Clinical effectiveness

MADs reduce AHI by approximately 50% on average, with a meaningful proportion of patients reaching normal or near-normal indices. MADs may not match CPAP in absolute AHI reduction, but the clinically important variable is real-world adherence — patients consistently comply better with oral appliances than with CPAP, which can translate to equivalent or better health outcomes in practice.

The evidence shows:

- Significant reduction in snoring frequency and intensity
- Improved nocturnal oxygen saturation
- Reduced daytime sleepiness
- Measurable improvements in quality of life
- Better sleep quality for bed partners

Custom-fabricated versus over-the-counter devices

There's an important distinction between custom-made, professionally fitted MADs and the inexpensive "boil-and-bite" devices sold through online retailers or pharmacies. Custom appliances are fabricated from precise dental impressions or digital scans of your teeth, offer calibrated and adjustable

mandibular advancement, and are made from medical-grade, durable materials. They're fitted, adjusted and monitored by a qualified dental professional, and are supported by substantially stronger evidence for both efficacy and safety.

Over-the-counter devices are not recommended by sleep medicine professionals — inadequate fit, limited adjustability and the absence of professional oversight throughout treatment are significant drawbacks.

What to expect: the fitting process

For patients proceeding with a custom oral appliance, the process typically involves these stages:

1. **Initial assessment:** A comprehensive dental and jaw examination, review of your sleep study results and a detailed discussion of your treatment goals and preferences 2. **Records:** Precise records of your teeth and bite relationship, obtained via traditional impressions or digital intraoral scanning 3. **Fabrication:** Custom manufacture of the device in a specialist dental laboratory, typically taking two to three weeks 4. **Fitting and initial adjustment:** The device is seated, assessed for comfort and the initial mandibular advancement position is established 5. **Titration:** Over subsequent weeks, the degree of advancement is incrementally increased to find the optimal therapeutic position — enough to resolve symptoms without producing jaw discomfort 6. **Verification sleep study:** A repeat sleep study or validated home monitoring with the device in place to confirm effective treatment of the apnoea 7. **Ongoing review:** Regular monitoring appointments to assess the device, your dentition and the health of your temporomandibular joints

Surgical management

For patients where specific anatomical factors are the primary driver of OSA, surgery may be the most appropriate pathway. Oral and maxillofacial surgeons perform a range of procedures including:

- **Uvulopalatopharyngoplasty (UPPP):** Surgical removal of excess soft palate and pharyngeal tissue
- **Maxillomandibular advancement (MMA):** Surgical advancement of both jaws to substantially enlarge the upper airway — amongst the most effective surgical interventions for OSA
- **Genioglossus advancement:** Repositioning of the tongue muscle attachment to prevent posterior tongue displacement
- **Tonsillectomy and adenoidectomy:** Particularly effective in paediatric OSA

At Collins Street Specialist Centre, the oral and maxillofacial surgery team has specific expertise in the surgical management of sleep-related breathing disorders, providing both assessment and operative treatment for patients where a surgical approach is clinically indicated.

Potential side effects of oral appliances

MADs carry a profile of potential side effects, most of which are manageable and tend to ease with time:

- **Jaw discomfort or TMJ soreness:** Most pronounced during the initial weeks of use; morning jaw mobilisation exercises generally help
- **Excessive salivation or dry mouth:** Typically resolves as the oral tissues adapt to the appliance
- **Tooth sensitivity:** Usually mild and transient
- **Occlusal changes:** With extended use, some patients notice subtle changes to their bite; regular dental monitoring allows early identification and management
- **Gag reflex:** Rarely a problem with a well-designed, properly fitted custom device

Your treating clinician will monitor for any emerging issues and adjust the appliance as needed throughout treatment.

The multidisciplinary approach to OSA management

Effective OSA management often requires coordinated input from several health disciplines:

- **Sleep physician:** Formal diagnosis, treatment recommendations and ongoing sleep monitoring - **GP:** Initial assessment, referral coordination and management of associated systemic conditions - **Dentist or prosthodontist:** Oral appliance fabrication, fitting and long-term monitoring - **Oral and maxillofacial surgeon:** Surgical assessment and operative treatment where indicated - **ENT specialist:** Evaluation of nasal and pharyngeal anatomy - **Dietitian:** Weight management support, given that meaningful weight loss can produce significant improvement in OSA severity

At Collins Street Specialist Centre, our multidisciplinary structure supports this collaborative model of care, with specialists able to consult and co-manage patients within the one centre — reducing the coordination burden for both patients and referring clinicians.

OSA in children

Sleep-disordered breathing in children is more common than many families realise, affecting an estimated 1–5% of the paediatric population. Tonsillar and adenoidal enlargement is the most common cause, and children frequently don't present with the symptom profile typical of adult OSA. Clinical indicators in children include:

- Habitual snoring - Restless or disturbed sleep - Mouth breathing - Nocturnal enuresis - Behavioural difficulties (which may be misattributed to attention deficit hyperactivity disorder) - Poor academic performance - Hyperextended sleeping posture

Orthodontic intervention — including palatal expansion — can contribute meaningfully to managing paediatric sleep-disordered breathing by increasing nasal airway volume and oral space dimensions. Our paediatric dentists and orthodontists at Collins Street Specialist Centre are experienced in assessing children with suspected sleep-disordered breathing and coordinating care with sleep physicians and ENT specialists as required.

Taking the next step

If you're struggling to tolerate CPAP, have been diagnosed with mild to moderate sleep apnoea, or your dentist has identified clinical signs consistent with sleep-disordered breathing, a custom oral appliance may be an effective and well-tolerated option worth exploring.

Collins Street Specialist Centre offers comprehensive assessment for sleep-related breathing disorders, custom oral appliance therapy and, where clinically appropriate, surgical evaluation — all within one specialist practice in Melbourne's Manchester Unity Building at 220 Collins Street.

Call (03) 9654 5705 to arrange a consultation and find out whether oral appliance therapy could help you sleep better, function better during the day and protect your long-term health.

Frequently asked questions

What is obstructive sleep apnoea (OSA): Repeated collapse of the upper airway during sleep

How long does an apnoea episode last: Ten seconds or more

What does AHI stand for: Apnoea-hypopnoea index

What does AHI measure: Number of breathing disturbances per hour of sleep

What AHI indicates mild OSA: 5–15 events per hour

What AHI indicates moderate OSA: 15–30 events per hour

What AHI indicates severe OSA: More than 30 events per hour

What percentage of adults have OSA: An estimated 9–38%

****Is OSA commonly diagnosed:**** No, it remains substantially underdiagnosed

****Which groups have higher OSA prevalence:**** Men, older adults and those carrying excess weight

****Can a dentist identify signs of OSA:**** Yes, during routine dental examinations

****What dental sign may indicate OSA:**** Significant tooth wear from bruxism

****What is a scalloped tongue:**** Lateral indentations along the tongue margin

****Does a scalloped tongue indicate OSA risk:**** Yes, it is a recognised risk factor

****What is retrognathia:**** A mandible positioned further posteriorly than ideal

****Does retrognathia increase OSA risk:**** Yes, it reduces upper airway dimensions

****Can a narrow palate indicate OSA risk:**** Yes, it reduces upper airway dimensions

****What causes dry mouth related to OSA:**** Mouth breathing during sleep

****What is the most common OSA symptom reported by bed partners:**** Loud, habitual snoring

****Can OSA cause morning headaches:**** Yes

****Can OSA cause daytime sleepiness:**** Yes, excessive daytime somnolence

****Can OSA affect concentration:**** Yes, it can impair concentration and memory

****Is OSA associated with cardiovascular disease:**** Yes

****Is OSA associated with type 2 diabetes:**** Yes

****Is OSA associated with increased accident risk:**** Yes, motor vehicle accident risk is elevated

****How is OSA formally diagnosed:**** Via a sleep study (polysomnography)

****Can a sleep study be done at home:**** Yes, via validated portable monitoring devices

****Who typically initiates a sleep study referral:**** A GP or sleep physician

****Can a dentist initiate OSA investigation:**** Yes, by identifying clinical signs and raising the possibility

****What is CPAP:**** Continuous positive airway pressure therapy

****Is CPAP the first-line treatment for OSA:**** Yes, for moderate to severe OSA

****How does CPAP work:**** Delivers pressurised air to maintain airway patency during sleep

****What percentage of patients cannot use CPAP regularly:**** 30–50%

****Why do patients abandon CPAP:**** Discomfort, claustrophobia, noise or practical burden

****What is a mandibular advancement device (MAD):**** A custom oral appliance worn during sleep

****What does a MAD do:**** Holds the lower jaw forward to prevent airway collapse

****Does a MAD reduce snoring:**** Yes, significantly

****Is a MAD adjustable:**** Yes, advancement is adjustable in incremental steps

****Is a MAD appropriate for mild OSA:**** Yes, as a primary treatment

****Is a MAD appropriate for moderate OSA:**** Yes, as a primary treatment

****Is a MAD appropriate for severe OSA:**** Yes, when CPAP is not tolerated

****Can a MAD be used with CPAP:**** Yes, in combination therapy for selected cases

****By how much does a MAD reduce AHI on average:**** Approximately 50%

****Do patients comply better with MADs than CPAP:**** Yes, consistently demonstrated in research

****Does better MAD compliance affect health outcomes:**** Yes, may produce equivalent or superior outcomes

****Can a MAD improve sleep quality for bed partners:**** Yes

****Are over-the-counter sleep devices recommended:**** No, not recommended by sleep medicine professionals

****Why are custom MADs better than boil-and-bite devices:**** Superior fit, adjustability, materials and professional oversight

****What materials are custom MADs made from:**** Medical-grade, durable materials

****How are custom MADs fabricated:**** From precise dental impressions or digital intraoral scans

****How long does MAD fabrication take:**** Typically two to three weeks

****What happens at the MAD fitting appointment:**** Device is seated, comfort assessed and initial advancement established

****What is MAD titration:**** Incrementally increasing advancement to find optimal therapeutic position

****Is a follow-up sleep study required after MAD fitting:**** Yes, to confirm effective treatment

****Are ongoing review appointments required with a MAD:**** Yes, for monitoring of device, dentition and TMJ

****Can a MAD cause jaw discomfort:**** Yes, most pronounced during initial weeks

****Does jaw discomfort from a MAD resolve:**** Generally yes, with time and morning exercises

****Can a MAD cause excessive salivation:**** Yes, typically resolves as tissues adapt

****Can a MAD cause tooth sensitivity:**** Yes, usually mild and transient

****Can long-term MAD use change bite relationship:**** Yes, subtle occlusal changes can occur

****How are bite changes from MAD use managed:**** Via regular dental monitoring and early intervention

****Who fabricates custom MADs at Collins Street Specialist Centre:**** Prosthodontists with sleep disorder expertise

****What surgical option exists for OSA:**** Maxillomandibular advancement (MMA) surgery

****What does MMA surgery do:**** Surgically advances both jaws to enlarge the upper airway

****What is UPPP surgery:**** Surgical removal of excess soft palate and pharyngeal tissue

****What is genioglossus advancement:**** Repositioning of tongue muscle attachment to prevent airway collapse

****Is tonsillectomy effective for paediatric OSA:**** Yes, particularly efficacious

****What percentage of children are affected by sleep-disordered breathing:**** An estimated 1–5%

****Can paediatric OSA be mistaken for ADHD:**** Yes, behavioural difficulties may be misattributed

****Can orthodontic treatment help paediatric OSA:**** Yes, palatal expansion can increase airway volume

****Does weight loss improve OSA severity:**** Yes, meaningful weight loss can produce significant improvement

****Where is Collins Street Specialist Centre located:**** 220 Collins Street, Melbourne (Manchester Unity Building)

****What is the contact number for Collins Street Specialist Centre:**** (03) 9654 5705
