

Reclaiming Rest with a 3D Sleep Appliance

How one couple found relief from sleep apnoea

CASE DETAILS

Patient:

Mr WY, 73, South-East Asian male

Clinician:

Dr Ken Lee, SleepWise Clinic

Appliance:

3DS Advance (Dorsal-style, vapour-polished, nylon mandibular advancement device)

Condition:

Severe obstructive sleep apnoea (AHI: 32.3)

Outcome:

AHI reduced to 10.4; improved sleep quality and partner satisfaction

THE CASE

BETTER SLEEP WITH A SINGLE DEVICE

For patient Mr WY and his wife, bedtime had become a nightly struggle. His snoring was more than disruptive – it was alarming. An ambulatory sleep study confirmed a diagnosis of severe obstructive sleep apnoea (OSA), but years of fatigue, forgetfulness and restless nights had already taken their toll.

After an unsuccessful trial of CPAP, Mr WY was referred to the SleepWise Clinic. Shortly after, a single oral appliance – the 3DS Advance – delivered measurable clinical improvements and significantly increased the quality of sleep for both the patient and his partner.

Within six months, his symptoms, sleep quality and objective sleep metrics dramatically improved.

THE CHALLENGE

RESTORING RESTFUL SLEEP FOR TWO

Mr WY's primary complaint wasn't his own tiredness – it was his wife's. Her sleep was frequently disrupted by his loud snoring and pauses in breathing. "She rated his snoring 8 out of 10 on a numerical rating scale," reported Dr Ken Lee. She would often have to wake him when he stopped breathing, especially while he was lying on his back.

Mr WY was also beginning to experience daytime symptoms. His Epworth Sleepiness Score (ESS) was 9/24, and he described issues with concentration and memory. While he hadn't experienced mood changes or morning headaches, the signs of sleep disruption were ever-present.

He had tried nasal strips, cones and positional therapy in the past with limited success. Then, a shoulder injury made it even harder to avoid supine sleeping. Ultimately, an ambulatory sleep study in December 2021 revealed troubling results:

- AHI: 32.3 events/hr
- Oxygen Desaturation Index (ODI): 34.7/hr
- O2 nadir: 74%

THE SOLUTION

A 3DS ADVANCE APPLIANCE, TAILORED TO THE PATIENT

Mr WY was initially trialled on CPAP, but he found it intolerable. As an alternative, Dr Lee recommended a mandibular advancement splint from 3D Sleep.

The 3DS Advance appliance was selected for three key reasons:

- **Design flexibility**

Its dorsal-style structure allows for vertical mouth opening, letting the patient breathe through the mouth if needed.

- **Material benefits**

3D printed, vapour-polished, nylon is both strong and comfortable, which is ideal for patients with heavily restored dentitions and many undercuts.

- **Patient motivation**

Mr WY was engaged in the treatment plan and capable of self-managing titration.

"We started at 5mm of a possible 11mm protrusion to ensure comfort and adaptability," said Dr Lee.

Clinical considerations

Mr WY presented with a complex dental history, which included:

- Heavily restored dentition with multiple implants and crowns
- No periodontal disease, but gingival recession was noted
- Class I molar, canine, and incisor relationships
- A notable midline shift due to a missing lower incisor

Despite these challenges, Dr Lee found no contraindications for a mandibular advancement device. There were no signs of TMJ dysfunction or muscular tenderness, and his range of motion was within normal limits.

- **AHI down 68%**
- **ESS down by more than half**
- **Snoring resolved**



THE RESULTS

CONSISTENT COMPLIANCE AND MEASURABLE IMPROVEMENTS

Over six months and three review appointments, Mr WY experienced remarkable improvements in both objective and subjective symptoms.

Objective sleep study improvements:

The post-treatment sleep study conducted in May 2022 revealed the following results:

- **AHI:** Reduced from 32.3 → 10.4 events/hr
- **ODI:** Reduced from 34.7 → 11.2/hr
- **O2 nadir:** Improved from 74% → 76%

"His wife reports his snoring has significantly improved, with breakthrough episodes occurring only when he is particularly tired or has consumed excess alcohol." Dr Lee added.

Subjective sleep study improvements:

During follow-up discussions with the patient, he spoke of significant and promising improvements, including:

- Significantly reduced snoring, according to his wife
- No further witnessed apnoeas
- Daytime energy and alertness improved
- ESS score improved from 9/24 to 4/24
- Minor TMJ tenderness on waking (resolved within 15 minutes)

Adjustments and ongoing care

During titration, Mr WY gradually increased his protrusion from 5mm to 9mm. This process was managed over multiple visits, with minor appliance modifications to accommodate changes in fit and lateral movement.

At the 6-month review, the appliance was reset to +4mm protrusion to reduce lateral movement. The patient also began using OTC nasal sprays for occasional blockage on the RHS. The final recommendation was to continue nightly use without further titration and to continue routine annual dental reviews to keep an eye on bite and device condition.

Pre-Treatment Sleep Study

Recording details23/12/2021

DeviceApneaLink Air

RecordingStart: 12:35amEnd: 8:07amDuration - hr: 7:32

Flow evaluationStart: 12:45amEnd: 8:05amDuration - hr: 5:32

Oxygen saturation evaluationStart: 12:45amEnd: 8:07amDuration - hr: 7:17

Statistics

A horizontal bar chart representing the Apnea-Hypopnea Index (AHI) scale. The scale ranges from 0 to 30+, with major tick marks at 0, 5, 15, and 30. The background is divided into four color-coded zones: Normal (0-5, light green), Mild (5-15, medium green), Moderate (15-30, dark green), and Severe (30+, red). A red vertical line marks the value 32.2, which is labeled at the top of the bar.

Events indexAHI: 32.2AI: 24.2HI: 7.9

SupineTime - hr 4:31Percentage: 81.9AHI: 38.8AI: 29.6HI: 9.3

Non-supineTime - hr 0:57Percentage: 17.2AHI: 2.1AI: 0.0HI: 2.1

UprightTime - hr 0:03Percentage: 0.9AHI: 0.0AI: 0.0HI: 0.0

Events totalsApnoeas: 134Hypopnoeas: 44

Apnoea Index Obstructive: 19.0Central: 3.6Mixed: 1.6Unclassified: 0.0

Cheyne-Stokes respirationTime - hr: 0:00Percentage: 0

Oxygen desaturationODI: 34.7Total: 253

Oxygen saturation %Baseline: 96Avg: 93Lowest: 74

Oxygen saturation - eval time %<=90%sat: 21<=85%sat: 3<=80%sat: 1<=88%sat: 9<=88%Time - hr: 0:38

BreathsTotal: 3093Avg/min: 9.3Snore: 1079

Pulse - bpmMin: 58Avg: 69Max: 98

Post-Treatment Sleep Study

Recording details

06/05/2022

Device	ApneaLink Air			
Recording	Start: 12:13am	End: 8:29am	Duration - hr:	8:15
Flow evaluation	Start: 12:23am	End: 8:27am	Duration - hr:	3:34
Oxygen saturation evaluation	Start: 12:23am	End: 8:29am	Duration - hr:	8:04

Statistics

Events index	AHI: 10.4	AI: 4.5	HI: 5.9
Supine	Time - hr: 3:19	Percentage: 93.3	
	AHI: 11.1	AI: 4.8	HI: 6.3
Non-supine	Time - hr: 0:00	Percentage: 0.1	
	AHI: 0.0	AI: 0.0	HI: 0.0
Upright	Time - hr: 0:14	Percentage: 6.6	
	AHI: 0.0	AI: 0.0	HI: 0.0
Events totals	Apnoeas: 16		Hypopnoeas: 21
Apnoea Index	Obstructive: 4.2	Central: 0.3	Mixed: 0.0
	Unclassified: 0.0		
Cheyne-Stokes respiration	Time - hr: 0:00	Percentage: 0	
Oxygen desaturation	ODI: 11.2		Total: 90
Oxygen saturation %	Baseline: 98	Avg: 95	Lowest: 76
Oxygen saturation - eval time %	<=90%sat: 3	<=85%sat: 1	<=80%sat: 0
	<=88%sat: 2	<=88%Time - hr: 0:07	
Breaths	Total: 2432	Avg/min: 11.4	Snore: 400
Pulse - bpm	Min: 54	Avg: 62	Max: 93

THE OPPORTUNITY

REFRAMING SLEEP TREATMENT FOR GENERAL DENTISTS

This case highlights how simple and effective sleep apnoea management can be when supported by the right partner. For general dentists, 3D Sleep removes the barriers that often make sleep treatment feel complex or out of reach.

By streamlining the workflow from diagnosis to device delivery, and offering industry-leading appliances that are durable, adjustable and comfortable, 3D Sleep empowers dentists to deliver life-changing outcomes without needing to be a sleep expert.

3D Sleep makes offering this service simple and straightforward:

- Proven appliance range designed for maximum patient comfort, easy titration and minimal chairside adjustment (3DS Advance, Connect, Eclipse)
- End-to-end support via a digital portal to submit scans, monitor cases and access records
- Education at your fingertips through video tutorials, treatment guides, and access to leading dental sleep experts

With 3D Sleep, general dentists can confidently expand their services, improve patient outcomes, and grow their practice without overhauling their existing workflow.

HELP YOUR PATIENTS GET BETTER SLEEP

Sleep treatment doesn't have to be complex. With the right tools, training and support, general dentists can help their patients get remarkably better sleep, just like Dr Lee did for Mr WY. Ready to start?



Get started with a case today
[Submit a case](#)



Explore appliance options
[Compare appliances](#)



Upskill with expert-led training
[Visit 3D Sleep Institute](#)

STILL HAVE QUESTIONS?

Contact us at support@3dsleep.com.au