

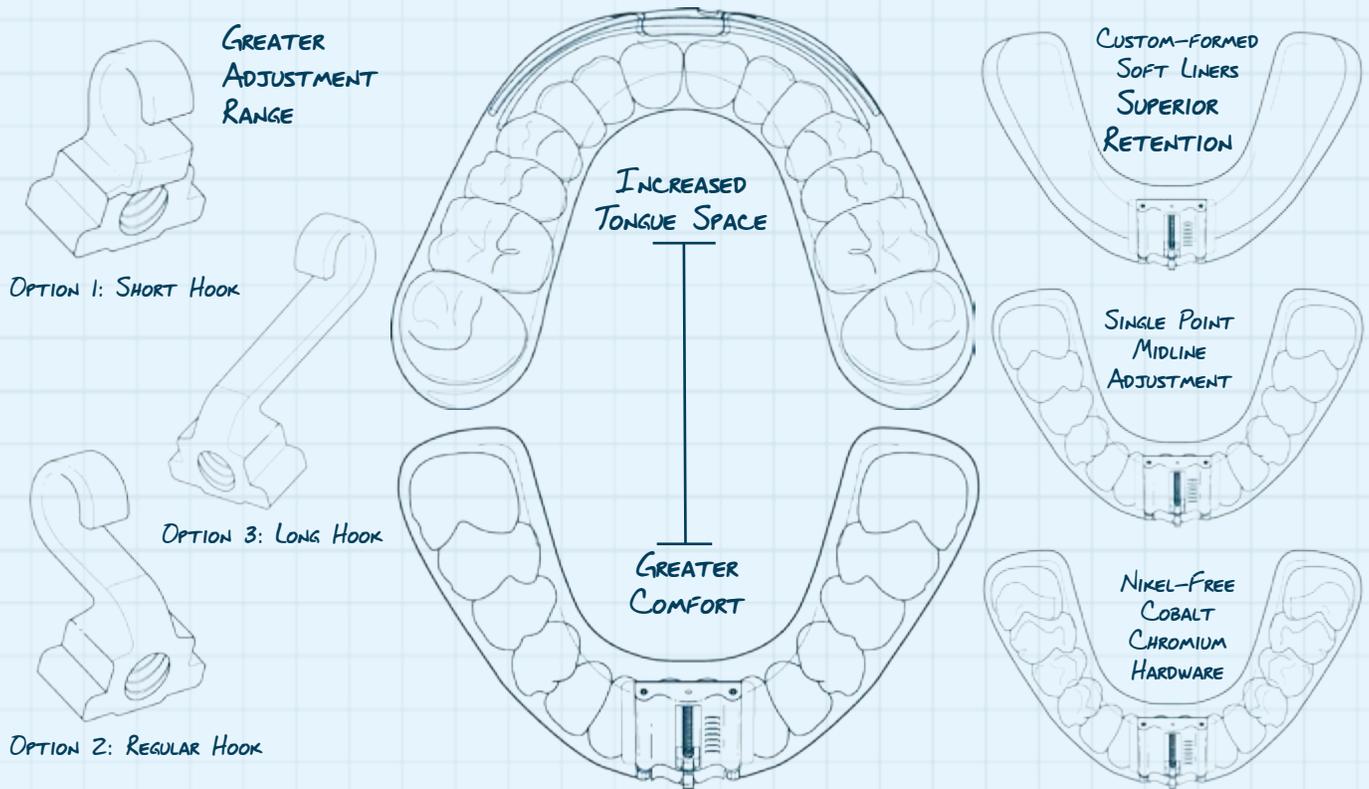
DENTAL  
SLEEP  
MEDICINE

# Insider

MAGAZINE

MARCH 2016  
Issue 10

## the new dreamTAP



turns the dsm world upside down!

### GETTING ORGANIZED

Make technology work for you rather than against you with these real-world examples from Dr. Yatros.

### DDS TO MD COMMUNICATION

Increase referrals and give your productivity a boost when improving your communication with doctors.

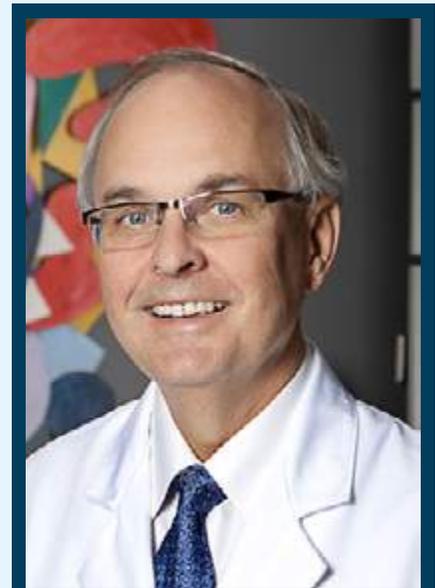
### ONLY THE NOSE KNOWS

Improve treatment when addressing nasal patency issues. Dr. Drake offers many insights for patient care.

# TIME FOR A PARADIGM

# SHIFT

## A Systems Approach to the Treatment of Sleep Related Breathing Disorders (SRBD)



**DR. KEITH THORNTON**

Developer of the Thornton Adjustable Positioner Appliance product line,  
Diplomate of the AADSM,  
Former professor  
at the Pankey Institute,  
CEO of Airway Management.

## PAST

I was introduced to Sleep Related Breathing Disorders (SRBD) in 1992 by an ENT surgeon who was a primary referral source for TMD. He had determined that surgery was not a good option for treatment of CPAP failures and had heard about a tongue-retaining device. Without warning he referred what was to be my first SRBD patient. She had a BMI of 51, AHI of 85, mean O2 saturation of 87%, and a low nadir of 48%. Comorbidities included congestive heart failure, uncontrolled hypertension, GERD, diabetes, atrial fibrillation among others. She was non-adherent with CPAP at a pressure of 18. Her sleep physician told her that since she had “failed CPAP” and was not a surgical candidate, her option was to go to “this

dentist who might have a solution”. She received the only device available, a TRD, within a week. She died two weeks later in her sleep of cardiac arrest. I learned several lessons from this:

**1. CPAP failures are common, even among the most severe patients treated by expert specialists.**

**2. Dentists have the education and skills to treat this problem but need better tools.**

**3. The problem is a mechanical collapse of the pharynx which can be treated by the same principals used in CPR and anesthesia by “airway management”.**

This led me on my quest to develop devices that would manage all levels of SRBD

from mild snoring to severe obstructive sleep apnea syndrome and to have credible evidence published in the medical literature.

## PRESENT

Fast forward to today. After 72 patents and counting, numerous iterations of appliances and mechanisms combining the best of all techniques and approaches including CPAP, and over 30 independent studies, I believe that we, at Airway Management, are changing the paradigm in the management of the continuum of SRBD. The goal of all therapy should be the same, regardless of the level of severity of the patient's SRBD, device used, or approach. The goal is adherence greater than 7 hours per night and the elimination of symptoms with an RDI/AHI below 5. The

Appliance	#Studies Mild	# Studies Moderate	# Studies Severe	# Success AHI<5	# Success AHI<10	% Reduction AHI
TAP	0	2	4	3	3	78%
Herbst	0	3	1	0	2	51%
Somnomed	0	7	0	0	0	56%
Silencer	1	2	0	0	2	48%
Klearway	2	1	0	0	1	45%

elephant in the room is that the medical/CPAP approach is a failure due to adherence while the dental/ oral appliance approach fails in consistently being able to treat all levels of disease.

The question then becomes which 50% solution (failure) is the best and which should be done first. If both fail, what is next? Fortunately there is very good evidence to answer these questions. Although I believe that the 2015 AADSM/AASM guidelines are misguided and that the meta-analysis is flawed (this is a whole different discussion), at least it identified the best evidence (33 randomized control trials) on mandibular advancement devices. However, it did not identify the appliance that was used in a specific study or studies or list outcomes such as reduction in AHI, morbidity, and symptom improvement to those appliances as was

done in the 2005 guidelines. Once that approach is applied to the studies in the current guidelines, it is patently clear that only one design is clearly superior in almost all categories of outcomes.

**“We, at Airway Management, are changing the paradigm.”**

Based on the evidence, the TAP is the only appliance that should be used for moderate to severe patients and is the only one that achieved the CPAP criteria of reduction of the AHI to below 5 in most cases. In fact the 2008b Hoekema study is the only study that has shown non-inferiority to the gold standard CPAP. According to the guidelines, TAP improved the

minimum oxygen saturation by an average of 12.5% whereas the rest of the appliances only improved it around 3%. TAP was the only appliance that was equivalent to CPAP for improvement in oxygen saturation. Mean reduction in ESS scores for TAP was 8.1 whereas for Somnomed it was 1.9 and for all others was 1.95. TAP was the only appliance that was equivalent to CPAP in reducing ESS.

What are the features that make the TAP successful? According to Hoekema two features are critical. The first is the ability of the patient to easily adjust the protrusion while the appliance is in the mouth and second is the ability of the appliance to protrude the jaw further than any other appliance. The mechanism of midline protrusion is critical to these features since the patient can protrude the mandible beyond maximum protrusion

	Post AHI	Pre AHI	AHI reduction	# Patients	Severity	% Reduction
Hoekema 2007b	5.2	50	44.8	9	Severe	90%
Hoekema 2008a	4	31	27	12	Severe	87%
Hoekema 2007a	3.2	20.4	17.2	20	Moderate	84%
Hoekema 2008b	7.8	39.4	31.6	51	Severe	80%
Holley 2011	8.4	30	21.6	497	Severe	72%
Ghazal 2009	7.9	22.2	14.3	48	Moderate	64%

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to maximum passive protrusion with only one adjustment screw. This feature also allows the appliance to be adjusted in the sleep lab by a technician without awakening the patient or removing the appliance from the mouth. Another critical feature is adequate tongue space. According to Isono, you must “create enough room in the box”. This is achieved not only by protrusion but also by increased vertical. Hoekema reported an average interincisal vertical of 13mm. The TAP appliances for the Holly (Army) study were manufactured by Airway Labs at 11mm vertical. Finally, the TAP has a single point contact anteriorly with minimum thickness of the trays allowing much more lateral room for the tongue.

## TODAY

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Airway management is pleased to announce the release of our newest appliance, dreamTAP this spring. The impetus for the change is the continuing drive to improve all of our products and to make the TAP not only the most effective appliance but also the most user-friendly for both dentists and patients. In an effort to make more room for the tongue, the screw mechanism has been placed on the mandibular tray in a forward position over the anterior teeth. The bars are placed approximately 5mm anterior to the labial of the upper incisors and from 1 to 5mm below the incisal edge depending on the vertical desired. All of the acrylic lingual to the anterior teeth has been removed. This allows the tongue to come forward with

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the mandible where it can rest under the incisal edges.



Again, this creates more room in the “box”. Although we have no studies yet, we feel that we will be able to achieve an even better result with less protrusion than our previous versions. We have also changed the composition of the metal in the mechanism from stainless steel to cobalt-chromium to eliminate any possibility of an allergic reaction to nickel and to increase the strength. As with all of our appliances, we have designed the dreamTAP to meet the PDAC specifications to qualify it for Medicare reimbursement.



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## THE FUTURE: TAP SLEEP CARE

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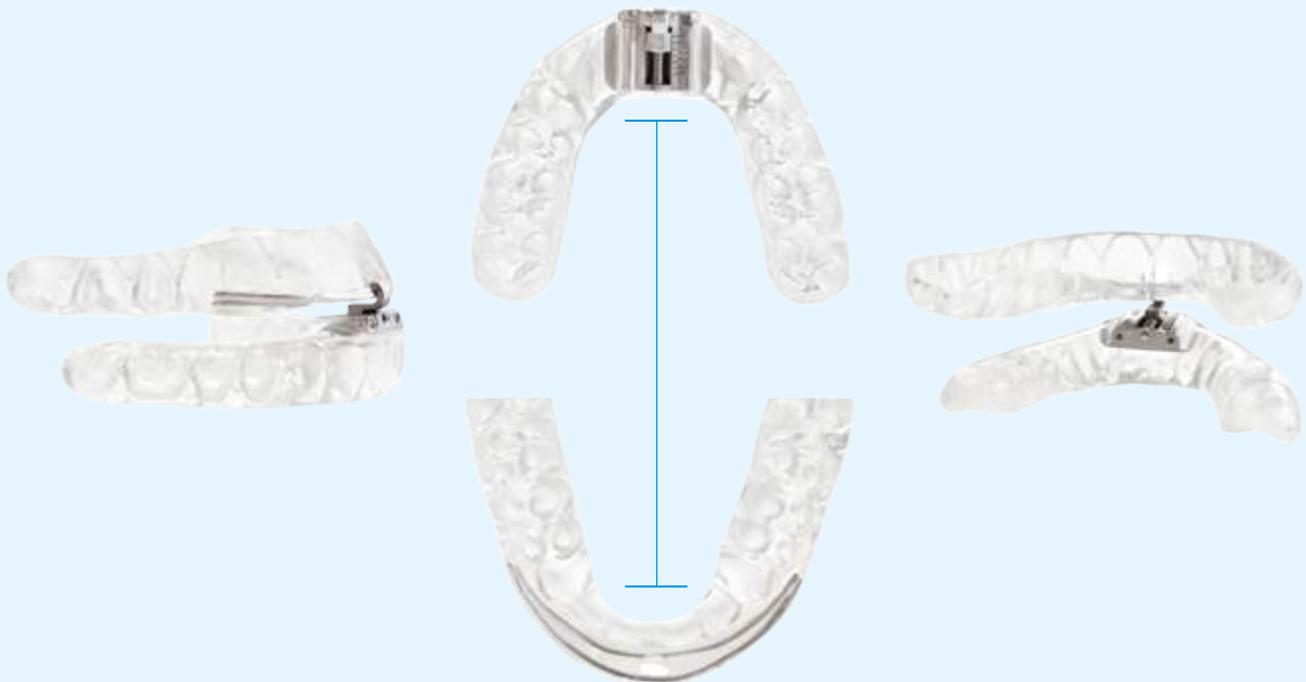
TAP Sleep Care is a systematic, comprehensive approach for managing SRBD. Several recent small studies have shown great promise for hybrid therapy such as TAP-PAP. One retrospective study showed that 70% of patients who were not adherent became successful

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with the TAP-PAP. With the TAP appliance being able to treat the majority of SRBD patients to below 5 AHI, with patients’ preference for oral appliances and a failure rate of 75% for CPAP, and with significantly improved adherence with hybrid therapy, the logical treatment algorithm should be initiating therapy with a TAP. If AHI less than 5 is not achieved, then TAP-PAP can be added. With the ability to attach the TAP-PAP CS or a custom mask to the dreamTAP, I believe that the future of SRBD treatment is truly in the hands of dentists.

# MORE COMFORT. MORE INNOVATION. MORE TONGUE SPACE.

INTRODUCING dreamTAP™ FROM TAP SLEEP CARE.



## AVAILABLE MARCH 2016 DREAMTAP FEATURES

Give your patients healthier, more comfortable sleep with dreamTAP - our newest, most comfortable and most effective TAP Custom oral appliance.

- *More tongue space for greater comfort*
- *Nickel-free, cobalt-chromium hardware*
- *Three hook sizes for greater range of adjustment*
- *Custom-formed soft liners for superior retention*
- *Patented, single-point, midline adjustment\**

