Achieving Cosmetic Results
While Treating Patients with Sleep Disorders

Payam Ataii
Welcome to the Greater New York Dental Meeting

**General Registration Hours**
Friday, November 29          12:00 Noon - 4:30 P.M.
Saturday, November 30         8:00 A.M. - 4:30 P.M.
Sunday, December 1 - Tuesday, December 3       8:00 A.M. - 5:30 P.M.
Wednesday, December 4         8:00 A.M. - 4:30 P.M.

**Exhibit Hall Hours**
Sunday, December 1 - Tuesday, December 3       9:30 A.M. - 5:30 P.M.
Wednesday, December 4         9:30 A.M. - 5:00 P.M.

**COURSE REGISTRATION**
Pre-registration is required for all continuing education courses with the exception of the “Live” Dentistry and Affiliated Groups. Your seat will be held for 15 minutes after the start of the course; after that, those without tickets will be seated according to space availability. When the room is filled, no additional people will be admitted due to fire department regulations. If you have not pre-registered, please be prepared to select an alternate session to attend.

**Tickets**
Tickets are required for all courses excluding “Live Dentistry.” Tickets for all functions can be purchased at all general registration booths located in the Registration Area on the Upper Level in the Crystal Palace and online.

**6 Days of Education Seminars, Hands-on Workshops & Essays**
Friday - Wednesday

**4 Days of Exhibits**
Sunday - Wednesday

**FREE “Live” Dentistry Hi-Tech 450 Seat Arena**

- **SUNDAY**
  - 9:45 - 11:45
    - VOCO America, Inc.
      - Drs. Ron Kaminer & Marc Geissberger
      - Restorative
  - 11:45 - 12:45
    - Dr. Ron Kaminer
      - Hi-Tech 450 Seat Arena

- **MONDAY**
  - 9:45 - 12:00
    - Millennium
      - Dr. Sundil D. Thanik
      - Laser
  - 1:30 - 2:45
    - First Fit
      - Drs. Frederick E. Solomon
      - Cyrus Tahmasebi
      - Digital
  - 3:30 - 5:15
    - Align I Invisalign I Itero
      - Drs. Karla Soto & Christian Coachman
      - Restorative

- **TUESDAY**
  - 9:45 - 12:00
    - Apa / CareCredit
      - Drs. Michael Apa
      - Aesthetic
  - 1:30 - 2:45
    - Glidewell
      - Dr. Justin Chi
      - Digital
  - 2:00 - 4:15
    - Benco / Vatech
      - Dr. Aeklayya Panjali
      - Implant

- **WEDNESDAY**
  - 9:45 - 12:00
    - Shofu
      - Dr. Ron Kaminer
      - Restorative
  - 1:30 - 2:45
    - Philips Sonicare
      - Dr. Gerard Kugel
      - Whitening
  - 3:30 - 5:15
    - 3Shape
      - Dr. Sundeep Rawal
      - Digital

**Celebrity Luncheon Speaker**

- **John Quiñones**
  - Monday, December 2nd
  - 12:00 - 2:00 - Ticket 4010
  - $125.00

**3D Printing & Digital Dentistry Conference**

- Dental Laboratory Technicians Programs
- Sleep Apnea Symposium
- Oral Cancer Symposium

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4 Days of Programming:
Sunday - Wednesday

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Over 1,700 Exhibit Booths
Communication is key in restorative dentistry, and they say that a picture is worth a thousand words. Regarding the field of dental photography, Shofu Dental Corporation continues to be a leader. Its EyeSpecial C-III camera has earned a 2018 Cellerant Best of Class award—the fourth won by a camera in the EyeSpecial line.

"There is no comparable option," says Payam Ataie, DMD, MBA, a general practitioner in private practice for more than 20 years. "The typical digital SLR cameras are too large, too heavy, and lack the lighting benefits. Many times, I have seen offices struggle just to take good before and after photographs. I believe we have succeeded tremendously with the EyeSpecial camera."

Designed exclusively for dentistry, the EyeSpecial C-III is compliant with the Health Insurance Portability and Accountability Act's (HIPAA) privacy and security rules and can be used for case documentation, diagnosis and treatment planning, patient communication and education, insurance verification, legal documentation, and dental laboratory communication. It is user-friendly and combines fast autofocusing capabilities with built-in anti-shake technology. It offers eight shooting modes to facilitate easier, faster, and more reproducible images. Water- and chemical-resistant, the camera features a large LCD touchscreen with built-in grid lines, so images can be easily lined up and cropped. It also provides an exceptional depth of field range and a high-performance, 49-mm close-up lens.

Ataie says his philosophy as a dentist is to treat every patient like a family member, so using the best tools at every stage of the process is important to him.

"You cannot treat what you cannot see," Ataie says. "Digital photography helps me identify areas of concern that otherwise would not be visible. It also allows me to present my findings using high-quality images that meet the expectations of patients who are seeking high-quality treatment options."

Ataie first used the EyeSpecial approximately 2 years ago. He wanted a superior point-and-shoot camera that was easy to use, lightweight, and waterproof. Initially, he was most impressed by the clean look...
of the camera and the fact that it was large but lightweight (ie, approximately 1 lb); however, he soon learned that there were many more advantages to using this camera than he had expected.

"My team not only fell in love with the light weight of the camera but also, most importantly, its ability to remove the side shadowing that most cameras produce," he says.

The EyeSpecial has the capability to provide shade guide information that Ataïi and his team can share with the laboratory to improve the esthetics on a case, but he also shares the photographs with the patients.

"Once patients see their smiles from your point of view, you will save a lot of money in the long run and increase treatment acceptance," he says. "Teeth do not fix themselves; dental practitioners fix them. And I love capturing my postoperative results with a camera that enhances my work. For the past few years, all of the photographs in my presentations and journal articles have been taken with the EyeSpecial camera. It provides me with incredibly detailed before and after photographs without being too cumbersome to operate."

The EyeSpecial C-III can be helpful for a wide variety of dental cases. Its shooting modes include standard, surgery, mirror, face, low-glare, whitening, tele-macro, and isolate shade. With other cameras, users must manually configure the settings for specific dental purposes such as those.

Recently, Ataïi has used the camera to document sleep treatment with the SleepArchITx™ system, for which he serves as an advisor.

"Dentists are getting more and more involved in treating patients who suffer from sleep disorders," he says. "I find that the flash/lighting options of the EyeSpecial make it perfect to capture the intraoral photographs that are typically required by comprehensive sleep programs. With previous cameras, we found it difficult to properly illuminate the patient in order to document the condition of the velopharynx, oral cavity, and adjacent structures."

Advanced features aside, the camera is simply easy to use for any member of the dental team, and it produces fantastic images. In addition to its four Best of Class awards, the EyeSpecial has earned several other prestigious honors, and Ataïi believes they are all well deserved. "Add an EyeSpecial camera to your office," he says, "and your team and patients will love you."

PAYAM ATAI, DMD, MBA, has maintained a private practice for more than 20 years and is the founder of the Elevate program.

Cellerant Award Selection Panel:
John Flucke, DDS
Paul Feuerstein, DMD
Marty Jablow, DMD
Pamela Maragliano-Muniz, DMD
Chris Salierno, DDS
Shofu Dental Corporation was among the companies recognized.

Panelists' Commentary:

"Communication is so important in dentistry. Whether it is for patient education; sharing clinical photos with specialists; conveying shade, character and contour information to the laboratory; or showing off on Instagram, excellent photography is a "must" in today's practice. Shofu's EyeSpecial C-III stands out because it makes taking exceptional photographs easy. My team isn't afraid of this camera because of the intuitive nature of its use, and it can be disinfected safely."

PAMELA MARAGLIANO-MUNIZ, DMD

"This point-and-shoot camera is made specifically for dentistry. Great photos, easy to train your staff, and it can even be disinfected. These features make it a great choice for your office."

MARTY JABLOW, DMD

"A camera that can take incredible photos right out of the box. It is designed specifically for dentistry and to produce great pictures with just a few minutes of training—an incredible amount of technology for a reasonable price tag."

JOHN FLUCKE, DDS
EyeSpecial C-III

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Visit www.shofu.com or call 800-827-4638
The EyeSpecial C-III digital dental camera is designed exclusively for dentistry. It produces predictable and consistent clinical photographs for case documentation, diagnosis and treatment planning, patient communication and education, insurance verification, legal documentation and dental lab collaboration. All team members, regardless of experience level, can achieve identical results! The camera offers 12 megapixels, intuitive one-touch operations, an ultra-lightweight sleek body and a large LCD touchscreen that allows the team to view and scroll through images with a gloved hand. Compatible with Wi-Fi wireless memory cards, clinical photos can be instantly transferred and uploaded to an operatory computer or other OSHA- and HIPAA-compliant devices.

- 8 pre-set dental shooting modes
- Auto-cropping, smart focus and zoom
- Exclusive FlashMatic system for true-color reproduction
- Shutter speed: 1/1000 of a second
- Water, chemical and scratch resistant
- Enables OSHA and HIPAA compliance
- Ultra-lightweight body: approximately 1lb
The EyeSpecial C-III is ready to use requiring NO changes or routine setting magnifications, unlike other digital cameras used in dental practices. The pre-set modes along with intuitive one-touch operations help achieve predictable and consistent clinical photographs every time.

The EyeSpecial C-III is user-friendly, incorporating intuitive one-touch operations. Durable, yet ultra-lightweight body frame allows the team to comfortably hold the camera with one hand. The EyeSpecial C-III demonstrates an exceptional depth-of-field range and fast autofocus, and possesses anti-shake, infrared, UV and anti-reflection attributes. It is also chemical, water and scratch resistant for compliance with infection control protocols.

The EyeSpecial C-III features a proprietary FlashMatic system with four macro LED lights mounted around the lens, as well as an inside and outside flash located on both sides of the lens. This cutting-edge flash system blocks out the ambient light allowing consistent images to be captured every time.

Navigating the EyeSpecial C-III is virtually stress free as no photography knowledge is required to work with this camera. Therefore, the entire dental team can engage in clinical photography, helping improve the practice efficiency, clinical accuracy, and increase patient acceptance.
**SHOOTING MODES**

**STANDARD MODE**
For standard intraoral photography

**SURGERY MODE**
For intraoral photography from a distance

**MIRROR MODE**
For intraoral photography using a mirror. The image taken can be reversed.

**FACE MODE**
For shooting facial views or half-body portrait

**LOW-GLARE MODE**
For photographing details of anterior teeth, working models and indirect restorations

**WHITENING MODE**
For shade comparison between before and after whitening

**TELE-MACRO MODE**
For photographing anterior teeth, indirect restorations and working models in higher magnification
* Attach provided Close-up lens when taking pictures in this mode.

**ISOLATE SHADE MODE**
You can isolate the shade for optimal shade matching.
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**EFFICIENT COMMUNICATION**

- Compatible with Wi-Fi wireless memory cards – instantly uploads images to operatory/computer and other HIPAA-compliant devices
- Draw/Edit Function – ideal for patient communication and education
- Isolate Shade Mode – improves shade matching and accuracy with the lab
- Whitening Mode – true-shade comparison for before/after the treatment

**ORTHODONTIC PHOTO DOCUMENTATION**

- Immediate case presentation
- Patient engagement and education
- Consistent case documentation
Limited Expressed Warranty
This product has undergone strict quality control and inspection. In the unlikely event that a defect or other problem is discovered under normal usage, Shofu warrants to original purchaser of EyeSpecial C-III in the U.S.A. and Canada that any defective component thereof, if found by purchaser and confirmed by the authorized repair center, shall be repaired or replaced and promptly returned to the purchaser at Shofu’s entire expense during a 1 year warranty period running from date of original purchase.

Except otherwise required by law, this expressed warranty is the only warranty made in lieu of all implied warranties, including fitness for purpose and merchantability.

The remedies stated herein shall be the only remedies of the original purchaser under the expressed warranty contained herein and any other warranties, expressed or implied required by law.

**NOTE**
Alkaline AA batteries, lens cap, hand strap, SDHC Memory Card and Shofu Gray Card are not consumables and will not be covered by the warranty.
The warranty and remedies shall not apply if this service registration card is not properly filled out by the purchaser and proof of purchase (invoice copy) is received by Shofu within thirty (30) days of purchase date, or if said component is damaged by purchaser by accident, abuse or misuse.

30 Day Money-Back Guarantee
If you are not satisfied with the EyeSpecial C-III, you may return the item within 30 days from the order date for a full refund of the purchase price*, minus shipping charges. The item must be returned, unused or used, in good condition, in original boxes with all paperwork and accessories to ensure full credit.

Order Information:
EyeSpecial C-III (Item No. E0001)
Included with the camera:
- 4 AA batteries
- 4GB SDHC card
- High performance Kenko 49mm macro lens
- Lens cap
- Video cable
- Hand strap
- Shofu grey card
- Safety instructions
- User manual
- Quick reference guide

EyeSpecial C-III Case (Item No: 5130CASE)
* Not included but compatible with: Eye-Fi Card and Rechargeable Batteries

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Performing Orthodontics While Treating OSA

Comprehensive treatment planning is essential to avoid malocclusion

Payam Ataii, DMD

According to practice parameters published jointly by the American Academy of Sleep Medicine (AASM) and the American Academy of Dental Sleep Medicine (AADSM), oral appliance therapy is an effective treatment option for snoring and obstructive sleep apnea (OSA).1,2 The parameters note that when patients are diagnosed with OSA, dentists should provide them with a “custom, titratable appliance over non-custom oral devices” as an alternative to continuous positive airway pressure (CPAP) therapy.1,2

More recently, the American Dental Association (ADA) approved and published an 11-point position statement outlining the role of dentistry in the treatment of sleep-related breathing disorders. Among the many recommendations, the ADA specifies that “a dentist should be the one to fabricate an oral appliance” when treating patients diagnosed with OSA.3

Despite these great practice parameters and position statements, none of these organizations specify which types of oral appliances to choose and, most importantly, what treatment philosophy should be used when treating these patients. These considerations are important because treatment with the most common types of oral appliances for snoring and airway patency has been known to produce unintended consequences, such as creating suboptimal movement of teeth.4

Others have observed that “the use of sleep appliances, which anteriorly reposition the mandible, may produce posterior open bites and maxillary retraction.”5 Therefore, it has been recognized that when utilizing sleep appliances, the design of the appliance and the management of the occlusion are important clinical considerations.6

Depending on the practitioner’s treatment philosophy and experience, selection of an oral sleep appliance can become challenging if the patient presents with OSA and malocclusions.

This article will examine two different patients with a diagnosis of mild to moderate OSA and similar apnea-hypopnea index (AHI) scores who were treated using two different treatment philosophies. Comparing

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Payam Ataii, DMD
Private Practice
Laguna Hills, California

(1.) Preoperative photograph. (2.) Results after 11 months of clear aligner therapy.
these cases highlights the necessity of proper treatment planning and appliance selection when treating patients who suffer from sleep disorders as well as the need for regular, long-term follow-up of these patients.

**Case Report No. 1**

A 61-year-old man presented with the chief complaint of wanting to have “straighter, whiter teeth.” An initial malocclusion exam revealed a Class 1 skeletal bite with minor lower anterior crowding of < 5 mm and flat, worn down lower incisors with a 1-mm overjet on anterior coupling (Figure 1). Treatment options were reviewed, and a clear aligner treatment plan was accepted by the patient and started shortly after. Correction of the malocclusion was accomplished using clear aligner therapy for a period of 11 months (Figure 2).

During the orthodontic exit assessment, the patient noted experiencing excessive sleepiness and was sent for a sleep study. After taking a home sleep test that resulted in an AHI score of 7.5 in the supine position, he received a diagnosis of mild sleep apnea from a physician. The AHI score indicates the number of times per hour that a patient stopped breathing due to blockage of the airway. To address the patient’s airway obstruction, a mandibular repositioning device (MRD) was fabricated (Figure 3). He was also given a morning occlusal guide, which helps reposition the mandible to its pretreatment position by utilizing biting force to reseat the condyles, reestablishing the appropriate occlusal relationship following each night of oral appliance therapy. The patient’s symptoms were stabilized, and he reported that he was sleeping more and feeling better. Unfortunately, he then moved to another state, and further follow-up was not possible.

Five years later, the patient returned to the office, and an examination revealed that he had developed an anterior bite in an end-to-end relationship. This resulted in moderate to locally severe anterior dental wear and a slight crossbite. He had also developed a unilateral posterior open bite as a result of molar shifting (Figure 4 through Figure 6). The patient reported that he was diligently wearing his oral appliance nightly.
He also reported that he was periodically using the morning occlusal guide and felt “it was working.” However, during chewing, he was suffering from intermittent, painful cheek biting.

To correct the patient’s current malocclusion while also addressing his airway deficiencies, a new treatment plan was developed. The plan involved the provision of combination therapy to simultaneously treat the malocclusions using clear aligners and the OSA using an FDA-approved custom sleep appliance designed to be worn on top of the aligners (Aligner Sleep Appliance®, SleepArchiT™). With this combination treatment plan, the patient was able to change the aligners and progress on to the next set while also wearing the appliance at night, keeping the airway patent. As the teeth are moved into the proposed positions by the clear aligners, expansion screws on the upper and lower components of the appliance enable it to be adjusted to follow their treatment path. Because the appliance can sit on top of clear aligner trays during any stage of treatment, the clinician has the opportunity to use the same sleep appliance after the completion of orthodontic treatment if he or she chooses to use clear aligners as a retention option (Figure 7).

After 6 months of clear aligner re-treatment, the posterior open bite tracked and was brought back into occlusion, and the end-to-end anterior crowding was resolved (Figure 8). The patient reported that he was no longer experiencing cheek biting and noted that his “back teeth have a bite now.”

“Regular, long-term follow-up care is essential to success when treating patients with sleep appliances.”

Case Report No. 2

A 57-year-old man presented with the chief concern of achieving a better smile and suggested potentially replacing his current upper anterior crowns because the gray metal had become visible at the gumline. An oral examination revealed a unilateral class I skeletal occlusion on the patient’s right side, a missing molar with drifted space closure on the patient’s left side, and a rotation of the opposing bicuspid (ie, No. 13)—all of which had been remodeling into his current occlusion for over 30 years without notable symptoms. The upper and lower anterior arches exhibited < 1 mm of overjet with mild lower anterior overlapping of the incisors (ie, < 4 mm) (Figure 9 through Figure 13). The patient also suffered from excessive daytime sleepiness, which was scored as mild to severe using the Epworth Sleepiness Scale. He was scheduled for a sleep study and was subsequently diagnosed with mild to moderate OSA after receiving an AHI score of 7.

Because the patient suffered from both airway deficiencies and malocclusion, the treatment options presented to him included the option of using CPAP therapy at night along with clear aligners to resolve the lower crowding and gain better upper overjet prior to replacing the crowns on teeth Nos. 8 and 9. However, the patient refused CPAP therapy and instead accepted an alternative treatment plan that called for combination therapy using clear aligners for the orthodontic movement in conjunction with a sleep appliance to help improve his OSA. He was fitted for both devices at the same time and instructed to change the clear aligners weekly and wear the appliance at night during sleep.

At the 2-week follow-up visit, the patient stated that he “felt better right away” and was “getting better rest at night” (Figure 14). The clear aligner treatment plan was finalized to address only the anterior malocclusions, without the rotation of the bicuspid or molar movements, because the patient had no desire to extend the length of treatment beyond what was necessary to resolve his cosmetic concerns and airway deficiencies.

The total clear aligner treatment time lasted less than 1 year. The lower incisor crowding was resolved with an improved anterior overjet of 1 mm, gaining an ideal envelope of function for the upper restorations. During the time of tooth movement, the sleep appliance was adjusted to move along with the clear aligners. In this manner, the mandible was advanced anteriorly while the patient slept at night. At the conclusion of treatment, a follow-up sleep study was performed to ensure ideal airway patency and a reduction of the patient’s OSA.

Six-weeks after the completion of orthodontic treatment, passive clear aligners with no built-in movements were ordered to start the restoration of the patient’s upper anterior crowns. Because the sleep appliance selected utilizes the convergence of
without the oral appliance to an AHI score of 3 with the appliance in place (An AHI score below 5 is considered to be within normal limits.). A cone-beam computed tomography scan of the patient’s airway showed stability without constriction, and most importantly, there was no clinical evidence of the teeth shifting or the presence of any malocclusions.

Conclusion
As evidenced by the contrast between the two cases, beyond following the practice parameters established by the AASM, the AADSM, and the ADA, selecting the proper oral appliance and appropriate treatment philosophy is imperative. Simply delivering any available sleep appliance is not sufficient to treat patients with sleep-related breathing disorders long-term. Clinicians should also include a comprehensive examination of the patient to identify any dental comorbidities, incorporate the joint restorative work needed to properly seat the sleep appliance, and select the most appropriate appliance given the unique condition of the patient’s craniofacial complex. In addition, working in conjunction with medical doctors to not only determine the best route of care but also establish the efficacy of the sleep appliance with follow-up sleep studies is important.

These two cases also serve to highlight the importance of ongoing follow-up after delivery of an oral appliance. Because there was no follow-up with the patient in case report No. 1 until 5 years after treatment, there was no opportunity to observe the malocclusions that were forming as the patient wore the sleep appliance and, therefore, no opportunity to intervene. With the patient in case report No. 2, regular follow-up occurred on a long-term basis to ensure that no teeth were shifting and that the sleep appliance continued to function effectively. Regular, long-term follow-up care is essential to success when treating patients with sleep appliances. Indeed, a protocol for long-term follow-up is outlined in the AADSM guidelines.

Disclosure
Payam Ataii, DMD, is the co-inventor of the Aligner Sleep Appliance® and a paid consultant for SleepArchitects™.

References

(14.) Combination therapy utilizing clear aligners in conjunction with the sleep appliance. (15.) Final treatment photo following orthodontics and restoration of upper central incisors.
How to Expand Your Dental Practice with Dental Sleep Treatments

A dentist shares his tried-and-true internal and external marketing techniques. Use these when adding sleep apnea services.

By Payam Ataie, DMD, MBA

As a dentist for over 20 years, I often think about how to expand my practice. Many of my patients have been with me for more than a decade, so I have already taken care of virtually all their restoration needs and gotten them on a good hygiene path. Without additional expansion of services, many of my patients would just be in maintenance mode and my practice would not grow.

At the same time, obstructive sleep apnea (OSA) and the word “airway” are becoming very hot topics in the dental field. So much so that the American Dental Association recently adopted a policy statement outlining the role of dentists in the treatment of OSA and other sleep-breathing disorders. Key components include assessing a patient’s risk for sleep-breathing disorders as part of a comprehensive medical and dental history and referring affected patients to appropriate physicians; evaluating the appropriateness of oral appliance therapy (OAT) as prescribed by a physician and providing OAT for mild and moderate sleep apnea when a patient does not tolerate CPAP; recognizing and managing OAT side effects; continually updating dental sleep medicine knowledge and training; and communicating patients’ treatment progress with the referring physician and other healthcare providers.

General consumer knowledge about the importance of sleep is growing, given the recent spate of reports about train and bus crashes due to drivers who suffered from OSA but were completely unaware that they had the disorder. I have now focused on growing my practice through dental sleep treatment.

INTERNAL MARKETING

With such a high and growing prevalence of OSA in the general population, as well as the burgeoning public knowledge about the topic, there are many patients in a typical dental practice who have already been diagnosed with OSA and have either failed to comply or refused CPAP treatment. While CPAP therapy is currently the gold standard treatment for obstructive sleep apnea, compliance rates for CPAP are between 17% and 54%.

Patients even refuse to try CPAP due to discomfort, noise, or the stigma attached with wearing a mask all night. It is almost certain that many patients in our dental practices have already been diagnosed with sleep apnea and are unwilling or unable to comply with CPAP. These patients are often eager to consider oral appliance therapy, once they find out it is an option.

Marketing strategies to those already in your patient base include raising awareness with patient education materials. Another marketing strategy is
to use your staff as awareness educators—by making sure you and your staff are well-versed in discussing the CPAP alternatives that you can provide, as well as the importance of getting treated. Everyone from the front office to the back office should be trained.

There is even a developing industry of service partners that can provide training, scripts, and patient education materials for your office. All of these increase patient expectations that they will be reviewed for sleep-breathing disorders as a regular course of their dental visits and offered therapy when appropriate. Over time, you will start to develop a reputation for providing dental sleep with your current patient base.

Patient education marketing materials can highlight some common oral side effects of OSA and related disorders such as sleep bruxism. Regular bruxism may be associated with moderate to severe dental damage, facial pain, and disturbed sleep. However, most patients exhibit obstructive respirations during sleep when the mandible falls back, bringing the back of the tongue with it. This triggers a series of events that, in some people, results in a reflexive attempt to open up the airway by increasing masseter tone. This brings the mandible forward and, in many patients, improves respirations. Unfortunately, over time this motion can lead to symptoms of pain in the temporomandibular joint (TMJ) and other problems such as morning headaches and wear on teeth, such as that pictured in the upper and lower arch photos shown on page 16. Including photos such as these in our patient education materials helps create the link between dental problems, sleep, and overall health. When patients understand the risks of not treating OSA, they are more likely to accept the necessary treatment.

Most of these patients are in their fourth or fifth decade and notice symptoms of daytime fatigue. They commonly clinically present with heavy worn-down coronal parts of their enamel, with some patients even complaining of tooth sensitivity at the gum level (due to heavy clenching causing gum recession). Advising the patient to simply reduce their stress or placing a night guard to protect their teeth against wear is simply not enough. In fact, 4 out of 10 of patients get worse, going from light to mild and mild to severe clenching, and even increasing the patient’s apnea hypopnea index (AHI) to 50% higher.

**EXTERNAL MARKETING**

In terms of new dental sleep patients, word-of-mouth referral has been my biggest source of marketing. This comes from two sources: existing patients and the medical doctors in my community. Existing patients who are treated for sleep are typically happy and grateful. They can be a big source of referrals for more patients to your practice. On average, I have found that my dental sleep patients have each referred 2.2 new patients to my practice.

In addition, make sure you are known for high quality collaborative care—this will drive referrals from your medical community. Partnering with a medical consultant or a group of sleep physicians is a must in my office, not only to help with the continued patient communications but also the needed diagnostic tools such as sleep testing, interpretations, and/or telemedicine, should the patient not have a current medical physician. I personally use SleepArchITx, a dental-medical service provider for which I am an advisor, to help connect the needed medical component to my dental practice. This assistance even extends to marketing because it connects me with medical doctors who then become referring physicians.

One of my biggest beneficiaries of this comprehensive dental-medical system has been my patient "Suzanne," whose case report was recently published in the journal *EC Dental Science.* Her symptoms ranged from TMJ pain to severely worn-down teeth and excessive daytime sleepiness. Suzanne scored a 22 on a SleepArchITx patient sleep assessment form, in which a score of 8 or higher indicates severe risk. Home sleep testing interpreted by a boarded sleep physician was done, and her AHI was 7. For Suzanne, who refused the CPAP, I was able to work with a SleepArchITx network sleep physician to collaboratively determine that an oral appliance was an appropriate treatment. We opted for treatment with clear aligners and the Aligner Sleep Appliance. These protocols along with follow-up sleep studies and continued support throughout Suzanne’s treatment helped her achieve a more comprehensive care plan and obtain more favorable pain-free results. Medical providers in my community now know that my dental practice has a high quality, collaborative care approach. The result is that we now refer patients to each other.

In these ways I have been able to grow my practice with dental sleep. I suggest starting with internal marketing. I recommend working with a service partner who can provide dental sleep training for your entire staff, including scripts to talk to the patients about sleep-breathing disorders and provide patient education materials for your office. The external marketing will naturally follow as you gain a reputation for providing high-quality collaborative care.

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**REFERENCES**


PAYING SUBSCRIBERS EARN 24 CONTINUING EDUCATION CREDITS PER YEAR!

Addressing sleep disorders with combination therapy
Dr. Payam Ataii

A comparative review of mandibular advancement devices and continuous positive airway pressure
Drs. George J. Cisneros, Oliver F. Nicolay, and Benjamin J. Goldstein

Digital workflow allows for strategic approach
Dr. Robert Waugh
Addressing sleep disorders with combination therapy: clear aligners and sleep appliance therapy

Dr. Payam Ataii discusses a sleep appliance specifically designed to be used in conjunction with clear aligners.

Two parallel and related trends

Two parallel and related growth trends are occurring in the United States: the growth of clear aligner treatment and the rise of diagnoses for sleep-disordered breathing. Over the past year, over 650,000 patients in North America sought clear aligner treatment, and the market is growing by 28% per year.\(^1\)\(^,\)\(^2\)\(^,\)\(^3\) New indications for clear aligners are being introduced, and patients increasingly see the esthetic benefits of clear aligners. At the same time, another trend in the U.S. is growing as strongly as clear aligners — the diagnosis of sleep-disordered breathing. Approximately 3.5 million sleep tests are ordered each year in the U.S., a number growing at nearly 13% annually.\(^4\)\(^,\)\(^5\)

The prevalence of sleep-disordered breathing is astonishing. The National Center on Sleep Disorders Research (NCSDR), an organization within the National Institute of Health (NIH), states that about 70 million Americans suffer from sleep problems, with approximately 60% of these having a chronic disorder.\(^6\) Given the prevalence in the U.S. population, it is not surprising that orthodontists and general practitioners see many patients in their practice who show signs of sleep disorders that need to be treated. This problem cannot be ignored. The NCSDR cites that “Sleep disorders, sleep deprivation, and sleepiness add an estimated $15.9 billion to the national health care bill.”\(^6\)

A variety of sleep appliances have been available for years to treat these patients, but the question has always been, “How do we treat patients with sleep disorders while addressing their chief complaint — to fix their smiles?” Traditional sleep appliances cannot be used in conjunction with clear aligners since both appliances need to be worn while the patient sleeps. Now, there is a solution to this problem — the Aligner Sleep Appliance (ASA)\(^6\) is an FDA-cleared, custom device specifically designed to address this issue.

Integrating dental sleep medicine within a clear aligner practice

Dental sleep medicine and orthodontic practices go hand in hand. The correlation between malocclusions and sleep disorders has been established in the journals for some time now.\(^7\) Malocclusions can compromise the space within the oral cavity, limiting the capacity and functionality of the tongue. Especially when patients lie on their back during sleep, if malocclusions are limiting the tongue from properly resting at the roof of the palate, there is a high likelihood that these patients will suffer from compromised airways. These compromised airways can present themselves as snoring, as chronic fragmented sleep (Upper Airway Resistance Syndrome), or as complete obstruction by the tongue and/or soft tissues (Obstructive Sleep Apnea). With the advent of CBCT technology, practices may better identify midfacial developmental deficiencies that may be contributing factors to collapsed airways and sleep disorders.

Given these complexities, choosing the right service partners for both clear aligners and dental sleep is important for orthodontic practices. For clear aligners, working with a reputable clear aligner company can be helpful to make the process simple and gain access to the necessary tools. On the dental sleep side, proper diagnosis of the patient’s sleep disorder as well as a comprehensive treatment plan that identifies the orthodontic considerations and type of appliances that may address the patient’s airway is critical. SleepArchiTx is an example of a dental sleep services company that provides this type of expertise with integration of board-certified sleep physicians, orthodontists, and general sleep practitioners.

When treating dental sleep patients, it is important to work with board-certified sleep physicians who may diagnose these conditions through high-quality home sleep tests or in-lab sleep tests. Most diagnostic companies or sleep laboratories are focused on identifying patients who suffer...
from Obstructive Sleep Apnea — and that is good — however, there are other breathing disorders that patients will present with. A diagnostic partner should also be able to properly identify the other possible disorders that orthodontists and general practices could treat, such as, Upper Airway Resistance Syndrome or sleep bruxism.

Given the correlation between malocclusions and sleep disorders, working with companies that have orthodontic expertise in treatment planning for sleep cases is imperative. The choice of which appliances to use affects the patient’s comfort and their clinical outcome. Often, dental labs or sleep services companies offer only one or few appliance options and expect those to work with every patient. Orthodontists should not be limited to a single appliance or small handful of choices because factors such as cranio-facial structure and degree of malocclusion will dictate the attributes of the sleep appliance that is needed. In addition, chosen custom sleep appliances must be FDA-cleared and fabricated by an FDA-approved laboratory.

Aligner Sleep Appliance (ASA)

The Aligner Sleep Appliance (ASA), available exclusively through SleepArchitects, is an innovative option that concurrently treats sleep-disordered breathing in patients undergoing clear aligner treatment. The ASA is designed to support the jaw in a slightly forward, protrusive position to help maintain an open airway while the orthodontic tooth movements are being addressed with the clear aligners.

Sleep test results have shown that this combination therapy is an effective treatment option for snoring and Obstructive Sleep Apnea patients who are being treated with Invisalign® or any other clear aligner treatment.8

How do the appliances work together?

The Aligner Sleep Appliance is a patented, FDA-cleared, custom-made appliance designed to fit over the patient’s clear aligners throughout the course of treatment. To fabricate the ASA, practices submit either a 3D intraoral scan or physical impressions of upper and lower arches. These impressions must be taken while the patient is wearing his/her current clear aligner trays. It should be noted that some intraoral scanners are not able to accurately detect the clear aligners when fitted over the teeth. If that is the case, instead, submit poured cast models, or PVS impressions to SleepArchitects.

The ASA is fabricated with a proprietary process of calibrating the patient’s final aligner ortho stage. This process allows the patient to use the same sleep appliance during the entire clear aligner treatment. This means that while the patient’s malocclusion is being resolved, and the programmed clear aligner trays are changed every 1-2 weeks, the ASA is designed to accommodate for the estimated tooth movements without being loose or flimsy. During follow-up visits, dentists may also perform chairside titration adjustments to the ASA by controlling the position of the mandible using the bilateral acrylic fins and/or the customized sagittal and horizontal calibration screws.

ASA Case Study

A 29-year old female presented to the practice seeking a better looking smile. During patient evaluation, it was determined that patient felt tired throughout the day, suffered from headaches, and was almost involved in vehicle accident due to being drowsy while driving. The patient’s intraoral evaluation presented with a high palate, narrow dental arches, upper anterior overjet, and lower anterior dental crowding. A study was prescribed, and the patient was diagnosed with Upper Airway Resistance Syndrome (UARS).
Treatment

Combination therapy with Invisalign trays and Aligner Sleep Appliance. The Invisalign trays were changed weekly during the 6-month course of treatment. The patient was concurrently custom fit with an ASA that repositioned the mandible. Proper positioning was verified with CBCT. One ASA was custom fabricated to adjust to all Invisalign trays. The patient’s constricted arch — caused in part by her tipping teeth — was addressed using Invisalign clear aligners on both upper and lower arches. This helped to upright posterior teeth and round out upper and lower anterior teeth for better tooth position and alignment. The ASA was adjusted up to 4 mm during treatment and used post-treatment in combination with the Vivera® Retention System on the upper arch and a fixed retainer on the lower arch. The patient’s postoperative instructions were to wear the ASA at night both during orthodontic phase as well as post-retention. The same appliance was used throughout the treatment along with stabilization and retention period of the patient’s treatment.

Treatment outcome

The malocclusion was corrected while maintaining a patent airway. The patient’s sleep symptoms of daytime sleepiness, fatigue, and even neck posture showed significant improvement along with better intraoral occlusion and tongue space. A follow-up sleep study confirms that the patient no longer suffers from UARS while wearing the ASA.

Conclusion

The Aligner Sleep Appliance was used to successfully treat this patient’s sleep disorder while enabling simultaneous clear aligner treatment. Neither the patient’s orthodontic needs nor her medical needs were compromised during the treatment process. This case highlights how the practices can offer clear aligner treatment and dental sleep treatment that work in tandem.

REFERENCES