

Sleep, Why dentists need to pay attention Breathing and Children

by Dr. Diana Batoon

Dr. Diana Batoon combines passion and expertise to challenge the way dentistry is done. She graduated from Tufts University School of Dental Medicine with specialized training in 1996, and the following year founded Bonita Dental in Scottsdale, Arizona. She later created the Arizona Center for Breathing and Sleep Wellness, inspired by her interest in sleep medicine and TMJ conditions.



Batoon is a member of the American Dental Association, the Academy of General Dentistry, the American Academy of Craniofacial Pain and the American Academy of Dental Sleep Medicine. She has extensive training in full-mouth rehab, sleep medicine and TMJ, and CAD/CAM dentistry. Batoon would like to thank Ortho-Tain for its assistance with this case.

Practicing dentistry means going beyond just looking at a child's dentition; now, dentists must look at the whole child and his or her overall health. We should evaluate our patients, screen for possible sleep issues, and have the expertise and knowledge of the oral cavity in terms of prevention and care. Now, the opportunity arises to expand this expertise to include airway, habits, and improper growth and development as factors that affect a child's ability to breathe and sleep well.


In October 2017, the American Dental Association presented and voted on a new policy regarding the pediatric patient, the evaluation of the airway, and identifying improper growth and development. This was approved, and the policy statement on sleep-related breathing disorders (SRBD) is available on the ADA website. Dental professionals will be responsible for educating themselves in these new policies and implementing them into their practices. A collaborative effort

requires doctors to diagnose sleep apnea and dental professionals to treat their patients accordingly. This protocol sets a precedent on a growing area in dentistry, and will only improve the quality of care in our profession.

How to treat sleep apnea


Every dentist needs to understand SRBD, their outward symptoms, the underlying root causes and the tools available to evaluate pediatric patients. Every dental professional has the expertise to diagnose clinical conditions, which can include narrow arches or constriction of the maxilla, vaulted palate, tongue posture, improper swallowing, mouth breathing, poor jaw relations and the underdeveloped mandible and/or maxilla. All can contribute to an unhealthy airway.

A dentist can begin this evaluation with a pediatric sleep questionnaire, which identifies symptoms of sleep-related breathing disorders. (Fig. 1, p. 86, shows the questionnaire for the patient in my case study, and includes before and after



scores for each symptom.) A parent fills out the form, indicating each symptom's degree of severity. It's important that parents fill out the form thoughtfully and, if necessary, to evaluate the child's sleep habits by videotaping him or her sleeping, or spending 10–20 minutes listening to the child breathe. Mouth breathing, the most serious of the habits, represents approximately 46.7 percent of the total 501 children,¹ according to a recent study.

Frequently, parents will not recognize the child's nighttime mouth breathing. Snoring is an easier symptom to identify, but not all mouth breathers will snore. Snoring should be more accurately described as "heavy breathing" or "breathing that can be heard." Research shows that if a child mouth-breathes, eight other outward symptoms can also be present.² These other symptoms can include bedwetting, teeth grinding, ADD/ADHD tendencies and allergies.

Patient Form 

Doctor: Barton
 Child's Name: Desiree Age: 5 Date: 11/15/16
 Filled Out By: [Redacted] Relationship to Patient: Mother

Sleep Disordered Breathing Questionnaire for Children
 Earl O. Bergersen, DDS, MSD

The initial column should be filled out at first appointment, and the follow up column should be completed after 3 months of treatment. Please identify the following symptoms your child exhibits with the scale indicating severity of symptoms.
 0 – Not Present 1 – 2 Mild 3 Moderate 4 – 5 Pronounced

Does your child:

	INITIAL	FOLLOW UP		INITIAL	FOLLOW UP
1. Snore at all?	3	0	14. Talks in sleep	1	0
2. Snore only infrequently (1 night/week)	5	0	15. Poor ability in school	5	3
3. Snore fairly often (2-4 nights/week)	5	0	16. Falls asleep watching TV	2	0
4. Snore habitually (5-7 nights/week)	3	0	17. Wakes up at night	3	1
5. Have labored, difficult, loud breathing at night	1	1	18. Attention deficit	2	1
6. Have interrupted snoring where breathing stops for 4 or more seconds	2	0	19. Restless sleep	4	1
7. Have stoppage of breathing more than 2 times in an hour	1	0	20. Grinds teeth	5	0
8. Hyperactive	2	1	21. Frequent throat infections	0	0
9. Mouth breathes during day	3	1	22. Feels sleepy and/or irritable during the day	3	1
10. Mouth breathes while sleeping	3	0	23. Have a hard time listening and often interrupts	4	1
11. Frequent headaches in morning	0	0	24. Fidgets with hands or does not sit quietly	2	1
12. Allergic symptoms	1	0	25. Ever wets the bed	4	0
13. Excessive sweating while asleep	0	0	26. Bluish color at night or during the day	0	0
			27. Speech Problems *	5	3

*If yes, provide parent speech questionnaire

Was your reason for coming to this doctor for sleep or dental issues: Both

Based on Sahin et al, 2009; and Urschitz et al, 2004; AM Thoracic Soc Stand, 1996; Attanasio et al, 2010

Speech Questionnaire
 To be filled out only if #27 was indicated above

Please check all that apply to your child:

	INITIAL	FOLLOW UP		INITIAL	FOLLOW UP
28. Is it difficult to understand your child's speech?	✓		33. Gets frustrated when people can't understand speech?	✓	
29. Difficult to understand over the phone?	✓		34. Sometimes omits consonants	✓	
30. Nasal speech?	✓		35. Uses M, N, NG instead of P, F, V, S, Z sounds	✓	
31. Speech sounds abnormal?	✓		36. Hoarseness		
32. Others have difficulty understanding speech?	✓		37. Lisp		
			38. Any speech therapy?	✓	

How Long? 3 1/2 years

Dr. Speech Apraxia
 Based on Barr et al, 2007
 © by Ortho-Tain, Inc. 2013 Printed in USA Form 0222145C9

Fig. 1

necessarily mean the patient is not experiencing breathing and airway issues while sleeping, because the compromised airway can be a result of a habitual issue such as mouth breathing. Also, one must consider if radiation is necessary.

Sleep testing is available for patients through clinical lab sleep tests (PSG), home sleep tests and CPC monitoring. It's important to understand the benefits and drawbacks of each of these tests and who will prescribe, read and determine treatment options. This is an area where a collaborative effort should occur between a sleep physician and the dentist. Sleep physicians usually prefer a PSG to accurately diagnose the pediatric patient.

Additional collaboration can occur between a medical professional, a sleep physician, an ENT, a pediatrician, a neurologist, an allergist, a nutritionist, a psychiatrist and the dentist when evaluating the child. Each of these medical professionals can address and evaluate various factors that contribute to sleep and breathing issues. A severe breathing issue in a patient with tonsils almost touching or touching each other should be referred to an ENT. If a parent indicates on the sleep questionnaire that a stoppage of breathing occurs during sleep or interrupted snoring, this should indicate that a referral to a sleep physician is necessary. Keeping a patient's pediatrician involved in the treatment is important (and builds a referral base).

A correlation has been shown between SRBD and the school performance of primary students who are habitual snorers.³ Additional research shows that snoring is associated with behavioral issues, and is statistically significant for hyperactive behavior, concentration deficits, daytime tiredness, and falling asleep in school or while watching television.⁴ Tooth grinding also shows a significant and independent

association with poor school performance.³ Other evaluation tools available include a cephalometric radiograph or a CBCT scan with records that provide additional information about airway size and volume. However, these scans view the airway only in the upright position and cannot scan the airway when the patient is in a reclined position while sleeping. If a scan does not show a compromised airway, it doesn't

Fig. 2



Class III



Habit corrector



Occlus-O-guide



Fig. 3a

My protocol

In my practice, forming relationships and making frequent phone calls to these specialists allows the medical community to see that I am partnering with them to improve quality of care. This also provides the opportunity to share recent research that supports integrative medicine and dentistry.

The dental profession is changing and broadening its scope of evaluation and treatment. Dentists should screen for SRBD and, as necessary, refer to the appropriate physician.¹ Research shows that many children exhibit one or more outward symptoms of sleep-disordered breathing.² The growing epidemic of sleep issues appears to go largely

undiagnosed, misdiagnosed or frequently treated with medication.⁵

By creating open-airway dentistry, a dentist can identify airway issues and address improper growth and development as well as orthodontic conditions associated with sleep difficulties. Malocclusion can often indicate a narrow palate. Overjet can indicate a growth deficiency in the upper and lower jaw. A maxillary posterior crossbite can indicate a sleep issue and deficiency in nasal cavity growth as well as a compromised upper (nasopharynx) airway. A tongue restriction can indicate an underdeveloped oral nasal airway.

When my practice uses the Healthy Start

protocol, we can expand the upper arch and correct overjet, overbite, crossbite, open bite, gummy smile, and Class II and III conditions. Other benefits include addressing habitual issues such as mouth breathing, tooth grinding, thumb or finger sucking, tongue thrust and improper tongue swallowing.

The Healthy Start system is one type of treatment that offers a noninvasive, nonpharmaceutical modality. Younger patients wear these oral appliances passively at night, while older patients wear them two hours per day. The appliances guide and promote growth and development while addressing present habits and orthodontic conditions requiring correction.

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Fig. 3b



Fig. 4a



Fig. 4b

This treatment protocol has helped me identify underlying root causes that can contribute to sleep and breathing issues. The Healthy Start habit corrector (Fig. 2, p. 86) is designed with active myofunctional therapy built into every appliance. It provides repetitive correction of swallowing, tongue placement and nasal breathing, and promotes arch expansion. The prongs behind the lower part on the lingual aspect prevent tongue thrusting, the side panels keep the tongue in the proper space, and the ramp lets the tongue be placed in a more upward position. A child swallows one time a minute during sleep. By wearing the habit corrector while sleeping, the myofunctional therapy will be repeated more than 500 times per night.

Case study

A 6-year-old patient presented with a history of snoring on a regular basis, wetting the bed, waking up at night, grinding teeth and talking in her sleep. She was under the care of a speech therapist for 3½ years and diagnosed with apraxia. Her medical doctor suspected sleep apnea, but the patient had not been tested. She had academic difficulties and her parents were thinking about switching schools. The patient's mother brought her in for treatment because of the misalignment of her jaws, the dark circles under her eyes and a tongue-tie.

Observation

When I greeted Desi as she walked down the hallway, I noticed her gait was off and she appeared weak on the right side. Desi seldom spoke and had trouble sitting still for the exam. Clinically she was a pseudo Class III, with a bilateral crossbite and venous

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pooling underneath the eyes (Figs. 3a, p. 87, and 3b, this page). Her tongue position was low, and I observed a tongue thrust when she answered questions about school and her favorite color. Desi was predominantly a mouth breather.

Treatment

The Healthy Start treatment was implemented. A combination of functional appliances (pseudo Class III, habit corrector and Occlus-O guide IG/G) addressed the habits, orthodontic conditions and pseudo Class III condition (Figs. 4a and 4b). A lingual frenectomy with a diode laser was done in conjunction with treatment from a chiropractor who worked with Desi before and after the laser procedure to improve range of movement and strengthening her musculature.

Conclusion

Dentistry is no longer just about teeth but is about the overall health of our patients. There are many Desis out there, and these children are struggling to breathe and sleep. It is imperative for the dental community to provide airway treatment and to promote proper growth and development. Education for the dental provider is vital. As dentists, we look for education that provides the necessary knowledge and helps us gain the advantages of a hands-on experience that is critical for easier implementation in our practices. It should become our priority to look beyond the teeth and to identify health issues that affect our younger patients. In turn, we can recommend comprehensive treatment that provides a healthier lifetime of beautiful smiles.

It's 2018 and dentistry is still evolving. As members of the dental community, we need to understand that airway is a significant part of a child's growth and development. Poor habits contribute to these sleep issues, and dentists can provide a form of treatment that can address the root causes to ensure that all children have the chance to sleep soundly, breathe well and become healthier versions of themselves. ■

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