

The sleep team

A TEAM APPROACH IS NEEDED FOR SCREENING PATIENTS FOR OROFACIAL MYOFUNCTIONAL DISORDERS

BY PAULA FABBIE, RDH, BS



A medical group in my area published a full-page ad that claimed, "Children whose sleep was affected by breathing problems like snoring, mouth breathing, or apnea were 40% to 100% more likely than normal breathers to develop behavioral problems resembling ADHD [attention deficit hyperactivity disorder]." This statement was derived from the results of a large multiyear study by Karen Bonuck, PhD, et al., which was published in the journal *Pediatrics* in April 2012. As the statement suggests, proper facial development in children is crucial for overall health. Improper facial growth can cause sleep-disordered breathing, which can lead to high probabilities of

behavioral problems in children. A small, crowded jaw is a characteristic of improper facial growth that can be attributed in part to an orofacial myofunctional disorder (OMD). When a child has an OMD, he or she generally experiences other health and behavioral problems, as well.

Because of this link, health-care professionals are seeking orofacial myofunctional therapy (OMT) for their patients as part of a multidisciplinary approach to treatment. According to Moeller et al. in their June 2014 *Sleep Medicine Clinics* article, OMT is an effective tool in restoring nasal breathing because the therapy reconditions muscles to correct and op-

imize the same orofacial functions that are disrupted in sleep-disordered breathing (SDB). Revitalizing your approach to the assessment of OMDs will help to address the issues that can occur as a result of OMDs, and it will also contribute to the overall health of your patients.

OMDs are often not diagnosed early enough. Thirty-seven orofacial myofunctional therapy patients in my practice completed a survey, and over 35% of those surveyed indicated that they were aware that they had an OMD before it was addressed by a dental professional. More than 67% confirmed that their referring doctors informed them that the OMD

might have played a role in dental, facial, and upper-airway development. Thirty-three percent of the respondents reported that dental professionals did not correctly diagnose the problem initially, and over 86% expressed that an earlier diagnosis would have better addressed the issues, resulting in improved outcomes. One hundred percent of the participants responded that addressing OMD should be part of routine dental examinations. The results of this survey illustrate how early identification and interdisciplinary care produce the best results.

In this article, I'll provide an overview of how practitioners of dental sleep medicine are teaming up with practitioners of pediatric and adult orthodontics to address the needs of patients who have obstructive sleep apnea but can't comply with continuous positive airway pressure (CPAP) treatment, offering suggestions on how you can begin assessing OMDs in your practice.

Throughout my career in clinical dental hygiene, I witnessed the deleterious effects of parafunctional habits, ankyloglossia, low muscle tone, mouth breathing, tongue thrusting, nail biting, and non-nutritive sucking. Left untreated, these habits and disorders can contribute to problems that lead to improper facial and jaw growth, periodontal disease, deciduous and permanent tooth loss, fractured teeth and dental restorations, complications with implants, temporomandibular dysfunction (TMD), and repeated orthodontic treatment. OMT addresses these issues. (If you start looking for these disorders in your patients, you will be surprised at the prevalence.)

Several years ago, a patient's mother questioned me about tongue thrust therapy. She had noticed dramatic improvement in a young relative who was receiving OMT in California. She went on to say that her older daughter's orthodontist told them that a tongue thrust habit was delaying the progress of her orthodontic treatment. The mother asked about her daughter's chronic mouth breathing and whether the noxious habit may have exac-

erbated her asthmatic symptoms.

The mother said, "My older daughter needed this therapy, and now my younger daughter who sucked her thumb until the age of eight is thrusting her tongue and has her mouth open all the time. Can you find us a therapist locally?"

I called around, trying to find a speech pathologist who would provide private OMT for the two girls since this type of therapy was not allowed in the local schools. I also called several orthodontists to inquire about their treatment methods for OMDs. Many were using habit eliminator appliances that block the tongue but weren't successful with improving open-mouth resting postures, decreasing mouth breathing, or retraining the oral phase of the swallow.

DENTAL SLEEP MEDICINE TEAMS UP WITH PEDIATRIC AND ADULT ORTHODONTICS

The need for OMT is high, and the field is growing quickly. Practitioners of sleep medicine and orthodontics are coming together to address the needs of adults who have obstructive sleep apnea and can't comply with CPAP treatment. Many of these patients have a history of OMDs, are mouth breathers, have small, retruded jaws, and may have suffered from sleep-disordered breathing during childhood and adolescence. For the pediatric patient, early assessment combined with proper, timely treatment produce the best results. If you screen adults for sleep apnea, you should also consider screening your pediatric patients and start asking questions when you suspect that a patient may have an orofacial myofunctional disorder. Dental software programs have exam prompts that can help with myofunctional analysis and habit identification. These programs can assist with recording OMD treatment and with helping us remember to educate our patients — and patients' parents — on the harmful effects of non-nutritive sucking and how it impacts dentofacial growth, airway dimensions, speech, mastication, sleep,

and the health of temporomandibular joints.

Chances are, you've treated patients with OMDs. How many times can you recall having reclined the chair of a young patient only to witness severe nasal congestion or gagging? How often has the sight of a bitewing X-ray setup or an overflowing alginate tray instigated a whine or a few tears? Could these upper-airway obstructions cause a delay in necessary dental work or terminate a needed dental procedure? Could hypertrophied adenoids, huge kissing tonsils, or small and crowded jaws be responsible for compromised treatment outcomes? It is only natural for the child to feel the need to guard their oral airway. If you answered yes to any of the above, you have identified a child who may have a restricted upper airway.

We have all witnessed the thumb suckers who present with a short upper lip and a full lower lip that hooks behind the maxillary teeth. Consider what could happen to the child who has his or her mouth open all the time, who is growing a long face with allergic shiners, and who exhibits both a tongue thrust and severely underdeveloped jaws. A delay in addressing these etiologies could lead to orthodontic re-treatment and possibly the need for surgical realignment of the jaw and dental structures, and experts agree that 60 to 70% of facial growth is complete by the time a child reaches the age of seven.

For example, in the 2000 edition of *Contemporary Orthodontics*, Proffit writes: "Because of rapid growth exhibited by children during the primary dentition years, it would seem that treatment of jaw discrepancies by growth modification should be successful at a very early age. If treated from age 4 [to age] 6 when rapid growth occurs, significant improvements in skeletal discrepancies can be accomplished in a short period of time. It was concluded [that the] stability of these results [is] dependent on eliminating OMDs and establishing harmonious muscle function."

As a result, we need to identify these

issues in the primary dentition as early as possible.

The American Academy of Pediatric Dentistry's 2013 revised guidelines on periodic exams reflect this necessity: "Anticipatory guidance is a way for practitioners to provide practical and developmentally appropriate information about the child's health. Non-nutritive oral habits that include digit and object sucking, bruxism, abnormal tongue thrusting, and nail biting should be addressed before the malocclusion or skeletal dysplasia occurs. Deficiencies and abnormal delays in speech can be recognized and care [can be] coordinated using dental appliances and professional speech and language intervention. From age two to adolescence, it is advised to provide treatment or appropriate referral for treatment of non-nutritive habits. Treatment of developing malocclusion is an integral part of comprehensive pediatric dental care. Intervention to improve the dental structure will assist with achieving occlusal harmony, proper oral functions, and dentofacial esthetics. Objectives for intervention and treatment include: reversing adverse growth, prevention of skeletal and dental disharmonies, improving esthetics, self-image, and improving the dental occlusion."

Designed to help dental practitioners make clinical decisions, the revised guidelines emphasize the need for dental practitioners to screen patients for OMDs.

After the initial screening, a cone-beam computed tomography (CBCT) scan is often the first step toward treatment planning. Many dentists already rely on CBCT scans for orthodontic records, oral surgery, and endodontics, but CBCT is also used for airway imaging. An airway mapping of the minimal axial volume, hypertrophied lymph tissues, and structural abnormalities are no longer considered to be incidental findings since normal airways are necessary for proper craniofacial development.

In their *General Dentistry* article, "Orthodontic airway imaging: the cutting edge in treatment planning," Sharma et al. write: "A normal airway is an important factor in the physiologic growth of cranio-

My History with Myofunctional Therapy

My history with myofunctional therapy started at home. "Stand up straight," "shoulders back," "close your mouth," "breathe through your nose," and "take your fingers out of your mouth," were the daily reminders I heard from my stay-at-home mom. Her persistent coaching about proper posture increased my awareness of facial growth and development.

My twin sister and I were born two months prematurely, and our combined weight tipped the scales at less than eight pounds. At that time, in the late 1950s, the survival rate for premature twins like us was about 50%, so we are fortunate to have beaten the odds and to have lived healthy, productive lives. While we were growing up, we ate healthy foods that were minimally processed. Our mother believed that our diet — which consisted of homegrown fruits and vegetables, as well as local fish and game — was superior to the prepared and processed food that was becoming popular at the time. The raw, minimally processed food we ate required proper chewing and essentially served as homegrown myofunctional therapy. As a result, our faces grew properly, and our teeth didn't require any orthodontics.

In 1976, during my dental hygiene education, I was introduced to myofunctional therapy. At that time, we were taught that malocclusion resulted from habits such as prolonged thumb sucking, mouth breathing, tongue thrusting, and birth defects, such as ankyloglossia. We were shown cases demonstrating how these habits negatively affected speech, occlusion, periodontal health, and dental caries. We were also shown that, when habits persisted after orthodontic treatments, OMDs contributed to orthodontic relapse. Our professors encouraged us to take courses to become myofunctional therapists.

I was reintroduced to OMT when I attended a dental hygiene continuing education course on sleep apnea, which was presented by Beth Thompson, RDH, BS. The lecture was a refresher course on soft-tissue dysfunction that had originally been presented by my professor, Margaret Walsh, RDH, MS, MA, EdD.

In the course, Thompson made the connection between mouth breathing, soft-tissue dysfunction, noxious habits, and the effect of improper facial and jaw growth on the upper airway. In teaching about obstructive sleep apnea, many sleep experts explain how the tongue and other structures can obstruct the airway. I learned how mouth breathing, improper oral rest postures, non-nutritive sucking, nasal insufficiency, crowded teeth, underdeveloped jaws, ankyloglossia, hypertrophied tonsils, adenoids, lingual tonsils, low muscle tone, high palatal vaults, and craniofacial abnormalities and syndromes all contribute to upper airway issues.

This program taught me that many of the problems I was seeing in my dental patients could have been improved with early identification of OMD, followed by an immediate course of OMT. The solution was clear; I had to pursue the educational process needed to have a practice in orofacial to help patients with these issues. I told Thompson about how I saw these problems daily with my patients, but I did not have anyone in my area who could help them. She encouraged me to consider taking the necessary steps to get the proper training and experience for treating OMDs. At that time, I decided to focus my career on addressing and co-treating OMD with other health-care professionals.

facial structures. The imaging of the upper airway is an indispensable tool in the field of orthodontics. Differing methods of measurement of nasal airway dimensions and function have been proposed and utilized; each technique has its strengths and limitations. Upper-airway imaging has allowed us to begin to understand the biomechanical basis for obstructive sleep

apnea syndrome and mouth breathing."

When these airway and growth issues are identified, a team approach is best, and all dental specialties may be called in when appropriate. An otolaryngologist, a sleep physician, an OMT, and other health-care professionals may be needed. Dental radiologists are frequently

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Thought for the month:

"It is not a faith in technology. It is faith in people."

Steve Jobs RDH

■ Comfort Zone

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Yankee Dental Meeting last January and was blown away with how much more comfortable it was than other patient chairs. Not only does it support the patient's body well, the design minimizes physical stress to the clinician's body. The NuSimplicity is designed with a wafer-thin, narrow back, sufficient enough to support a patient but trim enough for clinicians to get in close. The arms are fully adjustable. The chair base pivots in multiple directions and a special feature makes it possible to reposition the chair to accommodate an event such as a wheel chair transfer. There are some really cool videos on the DentalEZ website.

Despite some tremendous advances in dental treatment, the mere thought of a dental visit still creates great stress and anxiety for some. I really don't think patients are trying to be difficult on purpose. Unresolved fears translate into less than ideal behavior on their end. Our response can either come across as cold and callous, further exacerbating the issues, or we can step back, take a deep breath and try to help our patients identify the source of anxiety.

Asking your doctor to participate in the conversation about dealing with patients who have mobility issues is really smart. The whole team needs to understand the limitations of the situation, the risks to your musculoskeletal health. There needs to be a clear consensus that you will provide the best care possible considering each individual situation. Circumstances, however, may dictate additional visits, billed at the appropriate fee level.

We don't need more reasons to get hurt. But as the population ages and people are living longer, dentistry will have to make changes in how we accommo-

date and care for people. Change is hard. It rocks our comfort zone; but if we don't change, we're going to get broken. RDH

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consulted to review these findings. Findings about what may be obstructing the airway, for example, may provide insight as to why a child is unable to breathe naturally, is snoring, and is having attention or behavioral issues. CBCT is a valuable tool that can be shared with team members, and many dentists are now designing their treatment plans after first evaluating the upper airway.

Patient education about airway problems and the available treatment options has been made easier by the many multidisciplinary not-for-profit organizations that have opened their doors to the public to raise awareness. For instance, the American Academy of Physiological Medicine and Dentistry recently released a YouTube video entitled "Finding Connor Deegan" on their website (AAPMD.org). This video gives a mother's testimonial about a family's struggle with a young boy's sleep-disordered breathing, which resulted in severe emotional, attention, and behavioral issues. His mother was not satisfied with her son being given the label "oppositional and defiant disorder," nor was she satisfied with how she was advised to treat the diagnosis. A top-notch medical-dental team in Chicago treated Connor's airway problems. After Connor was treated, parents and schoolteachers noticed a dramatic improvement in Connor's demeanor, behavior, and school performance. We all know too many children and families facing these same obstacles, often because of airway issues that have not yet even been identified.

As Connor's story shows, the time to start assessing orofacial myofunctional disorders in your practice is now. Our role as oral health educators has positioned us to become a vital link in airway-focused dentistry. Patients deserve early identification of OMDs and the proper timing of effective treatment by a team of trained health-care professionals. In summary, my mother was right: nasal breathing, proper posture, and good nutrition, along

with early screening and effective treatment, will support the growth of beautiful smiles, attentive minds, and healthy bodies. RDH

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OUT OF HIDING

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patient acceptability was much greater with varnish. The study also discovered that the varnish procedure uses considerably less time than the foam procedure (which is nearly identical to the gel procedure). With children ages 3 to 6, the time difference was more than three minutes (5.22 vs. 8.61). If you typically see eight patients a day, and assuming all of them needed a fluoride treatment, that would save nearly a half hour that you could use more efficiently.⁹

I did not investigate fluoride office rinses because they don't seem to be very popular, and because most of the research on rinses focuses on the home-use formulas, not the in-office formulas. I did find two brands of office rinses for sale, at 60 cents per unit dose and 47 cents per unit dose.

This is the bottom line. If you use the least expensive fluoride varnish for a patient, it will cost \$1.33. If you use the cheapest fluoride gel or foam with the cheapest trays, it will cost 33 cents. The cheapest in-office rinse will cost 47 cents per dose. Don't forget that with varnish there are significant savings in time and labor costs. Don't forget, either, that taking advantage of sales and special offers would bring the cost of varnish more in line with gel.

As convenient as it might be, some dental offices don't like using fluoride varnish because of concerns that it might clog suction lines or cuspidor drains. I've never had this happen, but I'm very conservative with varnish, and don't always use the entire unit dose. The problem may be more common when the entire dose is used all the time. Potential clogs can be avoided by giving the patient a paper cup or towel to