

Treatment and Prevention of Sleep Apnea: Dentistry Plays a Key Role

by STEVEN R. ACKER, D.D.S., M.S. AND NANCY HARTRICK, D.D.S.

Health and wellness are important interests and concerns among the public. The dental profession plays a significant role in this area with the increasing awareness of the relationship between oral and systemic health. The primary responsibility of dental practitioners is to educate and treat patients in a manner that enables them to make the best choices to improve the quality of their lives.

There has been much discussion in the public domain about sleep apnea. This has been brought more into mainstream media the past few years following the local fatal rail accidents that occurred on both the Metro North (2013) and in the Hoboken Terminal (2016). The common detail in each of the accidents is that the engineers of the trains suffered from obstructive sleep apnea (OSA). Excessive daytime sleepiness (EDS), is one of the common comorbid conditions in OSA.

Obstructive sleep apnea occurs when the airway closes off during sleep and breathing ceases until the brain detects a drop in blood oxygen and rise in carbon dioxide levels. This condition triggers

the sympathetic nervous system to signal for an arousal, which allows breathing to begin again but disturbs the normal cycles of sleep. This protection is the body's way to get us to our next breath, not to support an equilibrium where we can be healthy. The sympathetic nervous system stimulation is accompanied by an increase in cortisol levels via the hypothalamic-pituitary axis. Cortisol causes increased stress on the heart and other systems, which also increases levels of inflammation in the body. Heightened cortisol levels increase heart attack and stroke risk, as well as potentially a host of other comorbid conditions including erectile dysfunction, cardiac arrhythmias, hypertension, nocturnal bruxism, attention deficit hyperactivity disorder (ADHD), anxiety and depression.

Dentists are in a unique position to help people of all ages, from screening for airway issues in adult patients, to aiding in the development of normal airways for growing children. Healthy breathing is necessary both in sleep and in our daily awake lives. Focus on airway and breathing must be centered on

structure, function and behavior.

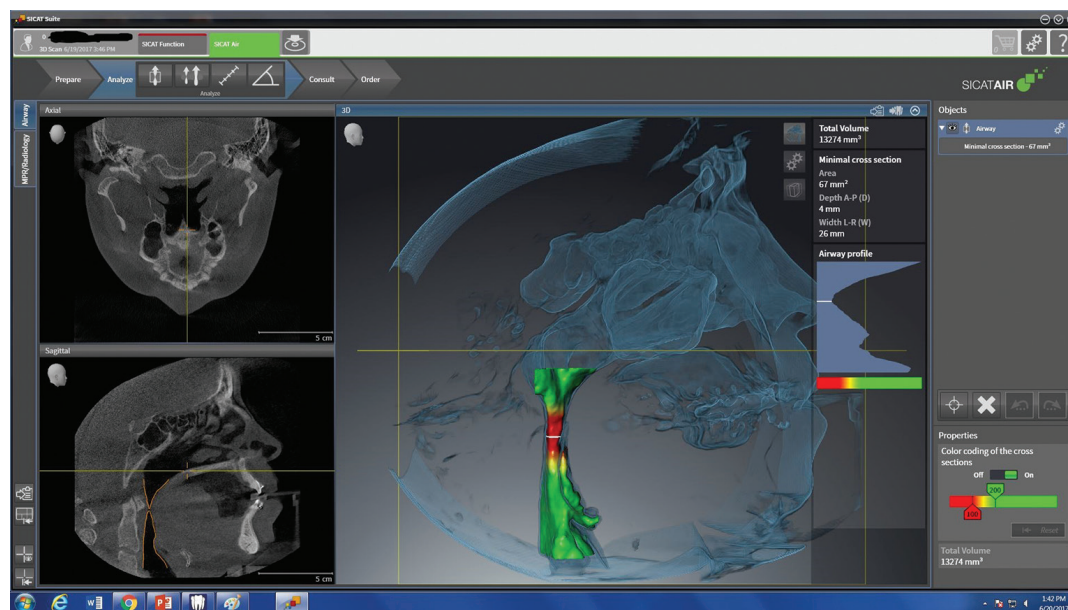
The use of functional appliances, in combination with myofunctional therapy, can be used to guide the growth of the maxilla and mandible to create healthy and properly functioning airways that may not develop into OSA. Long before the airway collapses in OSA, a patient goes through a period where it becomes too small, collapses or there is turbulent airflow, making breathing and proper exchange of oxygen and carbon dioxide difficult. It should be the focus of dental professionals to know how to screen for breathing and airway issues in adults and children, as well as how to properly treat pediatric patients so they can experience normal breathing and airway development. It is our responsibility to screen, diagnose and treat airways and breathing. We have access to great technology to assist us in proper diagnosis and management.

The introduction of High Resolution Pulse Oximetry and cone beam CT scans provides us with great tools to assist our patients in screening and diagnosis of airway issues. Although

diagnosis from a physician is necessary in sleep apnea, dentists can be trained to manage structural and function issues. This includes screening and managing these areas of care. We must take the lead in actively creating a network of health care professionals to treat and manage this large and growing public health concern. Dental health professionals should be in the forefront as they are uniquely trained to assess the oral, perioral and facial structures, as well as recognize and treat airway issues before the total collapse of airway – obstructive sleep apnea – occurs.

There is considerable literature to support the fact that many of the cases and symptoms of ADHD are associated with breathing and airway issues in children. Treatment as well as proper development and function of the airway can often eliminate the symptoms of ADHD. Children must be able to nasal breathe, seal their lips at rest and have proper tongue position and function. Nasal breathing stimulates production of nitric oxide. This chemical is produced in the paranasal sinuses and only during nasal breathing. It is a stimulant to the parasympathetic nervous system, which is essential for proper function of both the cardiovascular and central nervous systems. In addition to being a potent vasodilator, it also has antimicrobial properties. Constant mouth breathing causes inflammation to tonsils, adenoids and oral tissues due to lack of nasal filtration of air. The nose is the filter for the air we breathe as it helps eliminate the passage of viruses, bacteria, fungi and environmental irritants into our airway.

The proper rest position of the tongue from infancy is on the palate as it is the force that leads to proper development of the maxilla. Constant light



CBCT for look at sinuses, nasal passages and airway. Keys to upper airway resistance.

Continued on Page 6

Everything Old is...New Again!!!

by PHYLLIS G. MERLINO, D.D.S.

Save the date for our Richmond County Dental Society's Night at the Races, which will be held on Saturday September 9, 2017 from 6:30 P.M. until 11:30 P.M. Thanks to our president-elect, Dr. Michael Costa, who is chairing the event, we are looking forward to an exciting social evening together at the Meadowlands Racetrack and Entertainment Complex. Located in East Rutherford, NJ, the newly renovated center has much to offer in terms of dining and fun.

We invite all to attend! All Second District Members are invited to spend the evening with us – the more the merrier. We can all look forward to a relaxing night of socializing with our dental friends and colleagues. Our evening will include a BBQ dinner with dessert and three hours of a premium open bar while we watch and bet on the horse races.

We will be gathering at the Victory Terrace, a sprawling

rooftop space with lounge furniture, televisions and an outdoor bar and grill. Our private event on the terrace will have unbeatable views of the live racing action and the New York City skyline. It is the perfect location to watch the horse races with friends while enjoying the beautiful weather. And if you are lucky, maybe you will even win a few dollars! The beautiful terrace and east deck offer a stunning New York City backdrop. Guests can expect to witness some of the best sunsets reflected off the vast cityscape and the energetic twinkling of a bustling city at night.

This is not the first time Richmond County Dental Society has had a social event at the Meadowlands Racetrack. Back in the 1980s and 1990s, our Society had an active Women's Auxiliary. The ladies who were part of this group were not only an important adjunct to our Society with their volunteerism and help in educating school



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children about dental health, but were busy planning social events too. From plays in Manhattan to dinners out, the Women's Auxiliary encouraged the dental society members to fraternize and relax with each other. And from what I understand, boy did they have fun! I hope that this event is a success and that we can make it an annual part of our Society's outings.

If you are interested in attend-

ing, please respond by mailing a check for \$50 per person to Dr. Michael Costa at 62 Hart Boulevard, Staten Island, NY 10301 or contact Dr. Costa at (718) 442-3982.

I hope to see you all there!

Dr. Phyllis Merlino is a member of the RCDS Board of Trustees and a past president of RCDS.

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Continued from Page 5

forces of the tongue on the palate allow for formation of a wide and properly contoured maxilla. The maxilla is the scaffold for the facial structures along with the width of the nasal passages. Proper development is integral to proper airway formation. The mandible has a higher probability of proper development if the maxillary develops normally.

In clinical screening for airway and breathing, a red flag to normal airway development is the presence of a high palatal vault from tongue positioning. This can result when the tongue rests too low in the mouth which may be due to a tongue tie (ankyloglossia) or enlarged tonsils and adenoids. Open mouth posture, dry mouth, chapped lips, nasal congestion and snoring in children are all additional red flags

to proper breathing and airway development.

A network of health professionals who have full understanding of airway and breathing is necessary to help minimize potential diseases and conditions that can result from improper breathing. It is believed that over 40 million Americans suffer from breathing and airway-related issues and over 35 million are undiagnosed.

The network of health professionals that can help our community of patients with breathing and airway issues include the following:

- Restorative dentists
- Pediatric dentists
- Pediatric ENTs
- Adult ENTs
- Myofunctional therapists
- Respiratory physiologists
- Pediatricians

- Sleep physicians
- Primary care physicians
- Orthodontists
- Craniosacral therapists

The goal of these networks and dental practices is to have an algorithm for the diagnosis, control and desired resolution of breathing and airway issues for patients. This is a multidisciplinary approach that involves individualized care. In many cases, the restorative dentist and pediatric dentist are in the unique positions of being the first health care professionals to see and evaluate patients for breathing and airway-related issues. The message for the dental profession in 2017 is the fact that this health problem goes way beyond treating sleep apnea. This is a health concern whose vast ramifications are just now becoming well understood.

It is a life-changing issue for many patients in our communities. The dental profession has the ability to make a great impact on the health and wellness of our communities and our country.

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