

SnoreSolutions

Breathing Related Sleep Disorders
The Latest News on Airway Orthotic Therapy
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Quality of Sleep Related to Athletic Performance

The quality of your sleep is directly related to the quality of your performance during waking hours. Poor sleep has been associated with mood swings, fuzzy thinking, slow response rates, cardiovascular problems, reduction in daytime energy and daytime drowsiness; all of which will reduce the effectiveness of an athletes performance.

In recent years, star athletes have popularized the use of over-the-counter external nasal dilators. Scharf et al (1994) reported a remarkable reduction in daytime sleepiness and snoring during sleep in 20 snorers using a nasal dilator. However, these external dilators have a potential for adhesive allergy and may prove to be costly due to their one-time-use.

Another popular style of nasal dilator exerts a gentle outward pressure when



Internal Nasal Dilator



placed in the vestibule of the nose, dilating the anterior nasal cavity allowing for a greater flow of air. This style of dilator is reusable and does not pose an adhesive allergy risk.

Although a nasal dilator may remedy minor problems, a more serious breathing related sleep disorder may require other therapeutic approaches such as surgery, nCPAP or airway orthotic therapy. As with any medical disorder, the severity of symptoms is directly related to the severity of the disorder. Serious athletes will want to discount the presence of a breathing related sleep disorder at any level. As even a minor breathing related sleep disorder is likely to affect the level of their athletic performance during waking hours.

Although anyone could have a breathing related sleep disorder, athletes with the highest risk include males over 40, neck sizes of 17 inches or larger and those individuals with a high body mass index. Screening for a potential breathing related sleep disorder would be a good way to ensure that the quality of your sleep is not preventing you from performing at your peak. Initial screening involves a simple questionnaire, thorough history and evaluation of your airway using acoustic technology to determine airway patency and characteristics. Should a concern be discovered, a Sleep Study would definitively determine the severity of the disorder and the appropriate therapeutic recommendations would follow.

SnoreSolutions Hi-lights

- Sleeping well gives an athlete the winning edge
- Sleep Deprivation compromises complex decision making
- Side-effects associated with orthotic wear are short-lived and minor
- Evaluating the awake airway helps us understand what happens during sleep

News Flash

Sleep Deprivation & Decision Making

HARRISON et al published a review paper on sleep deprivation and decision making. He found that published studies usually involve simple tasks that are sensitive to sleep deprivation due to dull monotony. These studies demonstrate a strong correlation between sleep deprivation and performance. However, heightened participant interest, found in studies involving complex tasks result in a less remarkable relationship.

Regardless, recent findings show that **sleep deprivation still impairs decision making involving the unexpected, innovation, revising plans, competing distraction, and effective communication.**

Sleep-deprived decision makers who require these more complex skills during emergency situations are compromised from performing their responsibilities.

Side-Effects Associated with Airway Orthotic Therapy MARKLUND et al 2001

With proper patient selection, most of the side effects associated with wearing an airway orthotic are short lived; excessive salivation, sore teeth, sore musculature and TMJ tenderness usually resolve within several weeks of commencing regular orthotic wear for most patients.

A study conducted by Marklund et al investigated possible orthodontic side-effects following the use of an airway orthotic in adults with snoring and sleep apnea. They also considered orthotic design and choice of material used to construct the orthotic.

Seventy-five patients treated with either a soft elastomeric or a hard acrylic airway orthotic were compared to 17 reference patients after 2.5 +/- 0.5 years of orthotic wear.

The results indicate that the *orthodontic side-effects are small during the treatment of adult subjects with an airway orthotic for snoring and sleep apnea*, especially in patients using soft elastomeric devices with mandibular protrusions of less than 6 mm.

The follow-up of patients treated with these orthotics is recommended, as individual patients may experience marked orthodontic side-effects. Yearly follow-up appointments provide an opportunity for evaluation of tooth movement along with subjective evaluation of continued effectiveness of the airway orthotic. Acoustic evaluation of the orthotics ability to normalize airway behavior also provides valuable insight into continued orthotic effectiveness.



Awake vs. Asleep Airway Malhotra et al 2000

A recently published study evaluated two airway collapsibility measurement techniques in normal and apneic subjects; during wakefulness and sleep. The study of negative pressure pulses (NPPs) and inspiratory resistive loading (IRL), revealed a significant correlation between these two measures of collapsibility, and that collapsibility during wakefulness, as measured by NPPs, correlated significantly with collapsibility during sleep. Although both normals and apneics demonstrated a significant increase in pharyngeal collapsibility during sleep as compared to wakefulness, apneics were found to demonstrate significantly greater pharyngeal collapsibility than controls while awake. The authors suggested that:

“Upper-airway collapsibility measured during wakefulness does provide useful physiologic information about pharyngeal mechanics during sleep and demonstrates clear differences between individuals with and without sleep apnea.”

Evaluating airway characteristics through the use of acoustic reflection in the awake state provides us with valuable information, useful in determining airway orthotic candidacy, and construction, titration and maintenance parameters.

Dr. John S. Viviano obtained his B.Sc. and D.D.S from U of T and has practiced General Dentistry in Mississauga since 1985. He maintains a special interest in the treatment of Snoring, Sleep Apnea, and Breathing Related Sleep Disorders. He is a member of the American Academy of Sleep Medicine and Sleep Wake Disorders Canada. He is both a member of and credentialed by the certifying board of the Academy of Dental Sleep Medicine and he is also a member of and has lectured on behalf of the Canadian and Ontario Dental Associations and other organizations regarding the treatment of Snoring, Sleep Apnea and Patient Management Strategies. Dr. Viviano utilizes various appliance designs including trial appliances in his conservative treatment of Snoring, Sleep Apnea, and Breathing Related Sleep Disorders.

Evaluating the
Awake Airway
Helps Us
Understand
the Sleeping
Airway

Conservative Treatment
for Snoring-Sleep Apnea
and Breathing Related
Sleep Disorders
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Dentistry*

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