

# SnoreSolutions

**Breathing Related Sleep Disorders**  
The Latest News on Airway Orthotic Therapy  
Dr. John S. Viviano SnoreSolutions@aol.com  
SnoreSolutions.com



## Therapeutic Efficacy: A Factor of Compliance & Effectiveness

An accurate assessment of the therapeutic efficacy of particular therapy should take into consideration both compliance and effectiveness.

GROTE et al, Eur Respir J 2000;16(5):921-7 designed a study to determine overall long-term apnea alleviation after nCPAP therapy in a complete sleep laboratory cohort.

Out of 209 consecutive nCPAP candidates with a mean RDI of 32.9+/-29, follow-up treatment was performed in 149 of them at 9, 18 and 30 months after initial nCPAP was prescribed.

Compliance with nCPAP was adjusted for the individuals subjective sleep-time and apnea alleviation was defined as adjusted compliance multiplied by the nCPAP effect (RDI with CPAP applied).

For those patients accepting nCPAP, the 9 month follow-up RDI with nCPAP applied was 1.4+/-2.6. The mean nCPAP use was 3.6+/-2.5 hours per night. The mean apnea alleviation was 52.4+/-32.0%, and the average remaining whole-night RDI was 17.8+/-26.

At 9, 18 and 30 months, the mean daily nCPAP use increased from 3.6+/-2.5 hours to 4.1+/-2.5 hours to 4.4+/-2.4 hours.

The authors concluded that the effectiveness of nCPAP therapy is potentially high, but acceptance is low.

Accounting for sleep-time, its actual effect and use, "50% adjusted nCPAP effectiveness" was observed.



**Effectiveness & Compliance must be considered when evaluating Therapeutic Efficacy**

Interestingly, the authors found that baseline RDI, age and BMI in the 75 patients who did not tolerate nCPAP, did not differ from those that complied. Reeves-Hoche et al arrived at a similar conclusion in another study. However, conflicting information regarding patient selection to predict compliance is common in the literature. McArdle et al found that baseline RDI, nocturnal O2 desaturation and perhaps the level of daytime somnolence may give an indication of the likelihood of compliance. In another study, Hoy et al found better compliance after 6-months when the patient was self-referred for treatment rather than partner-referred. These, and other studies seem to indicate that establishing patient selection criteria may improve therapeutic efficacy of nCPAP therapy.

Further investigation helping to establish a protocol for appropriate patient triage to therapy a particular patient is most likely to comply with, would help increase the overall efficacy of the treatment of our patients afflicted with a breathing related sleep disorder.

## SnoreSolutions Hi-lights

- Patient selection linked to Therapeutic Efficacy
- Occupational accidents related to Sleep Disordered Breathing
- Oral Appliances have a high compliance and success rate for mild to moderate sleep apnea
- Nasal obstruction related to OSAS

## News Flash!

**Sleep-disordered breathing and occupational accidents.**

ULFBERG et al. Scand J Work Environ Health 2000;26(3):237-42.

The risk of occupational accidents was about 2-fold among male heavy snorers and increased by 50% among men suffering from OSAS. Recommendations: The early identification and treatment of persons suffering from sleep-disordered breathing would not only have positive impact on individual health and well-being but also on occupational safety.

# Treatment, Airway and Compliance Effects of a Titratable Oral Appliance

Lowe et al., *Sleep*. Vol 23, Supplement 4, 2000

This study was conducted to measure the effects of a titratable anterior mandibular repositioner on airway size, obstructive sleep apnea and to evaluate its compliance. It involved pre and post polysomnograms for 38 OSA patients of varying severity. Compliance was measured using temperature sensitive monitors that were imbedded in the acrylic appliances.

The *mean RDI was reduced from 32.6 to 12.1* with the oral appliance. Eighty percent of the moderate OSA (15-30) patients and sixty-one percent of the severe OSA (>30) patients experienced a reduction in RDI to below 15.

Using fibre-optic video endoscopy, it was found that airway size at the level of the velopharynx was significantly increased in cross section.

Compliance data demonstrated that the *average wear-time was 6.8 hours* with a range between 5.6 and 7.5 hours per night.

This study clearly demonstrates that oral appliances dilate the airway, are *well tolerated and effectively treat 80% of patients with mild to moderate OSA*.



**Airway Orthotics**  
High Compliance and  
High Success Rate  
For Snoring and Mild  
to Moderate Apnea

## Nasal obstruction—a risk factor for sleep apnoea syndrome

LOFASO et al conducted a study involving 541 unselected consecutive snorers referred for suspected breathing disorders during sleep (*Eur Respir J* 2000;16 (4):639-43). Posterior rhinomanometry, Cephalometric landmarks and body mass index (BMI) were obtained for all patients. Polysomnography was used to determine the number of abnormal respiratory events that occurred during sleep. OSAS was defined as an AHI >15. Patients with OSAS (259 patients) had higher nasal resistance than patients without OSAS. A stepwise multiple regression analysis showed that BMI, male sex, nasal resistance, and cephalometric parameters were all contributing factors to the AHI. Daytime nasal obstruction was found to be an independent risk factor for OSAS.

The role nasal obstruction plays in Orthotic success is not clear. However, clinical experience indicates that nasal patency is an important factor that contributes positively to successful reduction of AHI with an Airway Orthotic.

*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.

Nasal Patency May  
be Related to  
Airway Orthotic  
Success

Conservative Treatment  
for Snoring-Sleep Apnea  
and Breathing Related  
Sleep Disorders  
*General, Family and Cosmetic  
Dentistry*

Michael Angelo's Market Place  
1-4099 Erin Mills Parkway  
Mississauga, Ontario, L5L 3P9

Phone: 905-820-3200  
Fax: 905-820-9346  
email: [SnoreSolutions@aol.com](mailto:SnoreSolutions@aol.com)  
Web Site: [SnoreSolutions.com](http://SnoreSolutions.com)