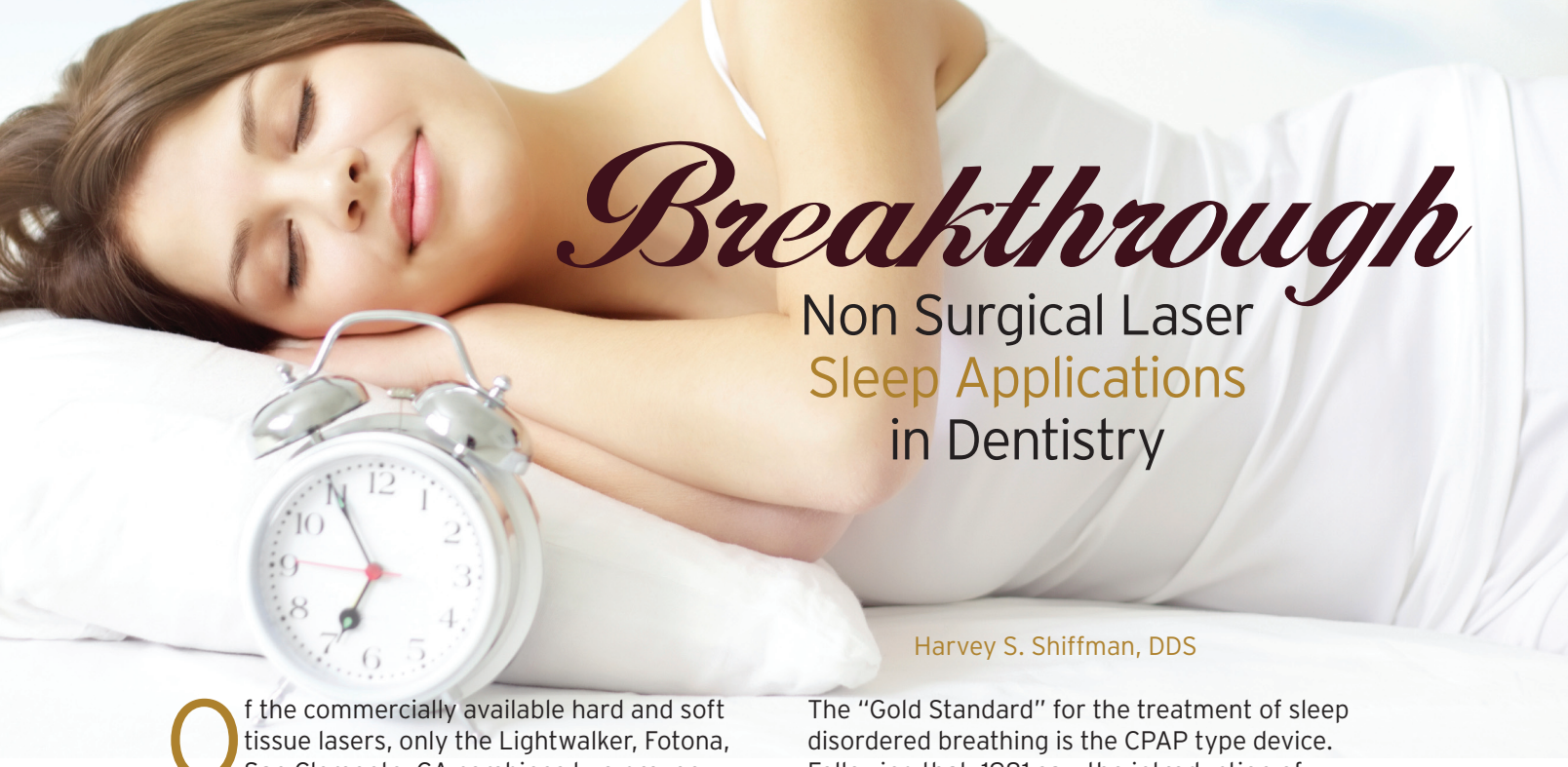


Breakthrough

Non Surgical Laser Sleep Applications in Dentistry

Harvey S. Shiffman, DDS

Of the commercially available hard and soft tissue lasers, only the Lightwalker, Fotona, San Clemente, CA combines two proven wavelengths, Nd:YAG and Er:YAG; wavelengths with unrivaled power and precise pulse control resulting in high levels of efficacy for a wide range of procedures. With this advanced level of performance comes significant patient comfort. The following procedure has been developed to take advantage of these attributes.

Snoring and Sleep disordered breathing affects millions of Americans, both adults and children.[1, 2] The signs and symptoms are the result of partial or complete collapse of the upper airway during sleep.[3] The structures involved in our protocol include the soft palate, uvula and the base of the tongue.[4] The goal of the treatment is to decrease the amount of blockage of the upper airway.[5]

Dentists are in a great position to help screen and in many cases treat these problems with airway management. Helping patients improve their sleep can profoundly improve their health, quality of life and the well being of their loved ones.

The "Gold Standard" for the treatment of sleep disordered breathing is the CPAP type device. Following that, 1981 saw the introduction of Mandibular Advancement Devices (MAD). Today, the top recommended MAD device is the Micr0$_2$. The NIGHTLASE™ Snoring and Sleep Apnea Reduction Therapy protocol is also a unique approach to treatment using the Fotona Lightwalker dental laser with a proprietary protocol and hand piece.

NIGHTLASE™ uses the photothermal capabilities of the Lightwalker laser to convert and initiate the formation of new and more elastic collagen.[6] The target mucosal tissues are the oropharynx, soft palate and uvula. The proprietary "Smooth Mode" pulse characteristics create a non-ablative heat generation or "Heat Shock" that initiates the conversion of existing collagen to more elastic and organized forms and also initiates "neocollagenesis" the creation of new collagen.

This process results in a visible elevation of the soft palate and uvula and tightening of the oropharyngeal tissues resulting in an improvement in the upper airway volume. The results can be seen in **figure 1**.

FIGURE 1

Before Nightlase

After Nightlase

NIGHTLASE™ therapy is indicated for cases when the patient has been diagnosed with chronic snoring, UARS or mild to moderate sleep apnea and either cannot or chooses not to wear an appliance or CPAP device. It can also be used in co-therapy with those devices and represents a less invasive alternative to current surgical chemical or radio surgical options that may require hospitalization, general anesthesia or soft tissue mutilation.

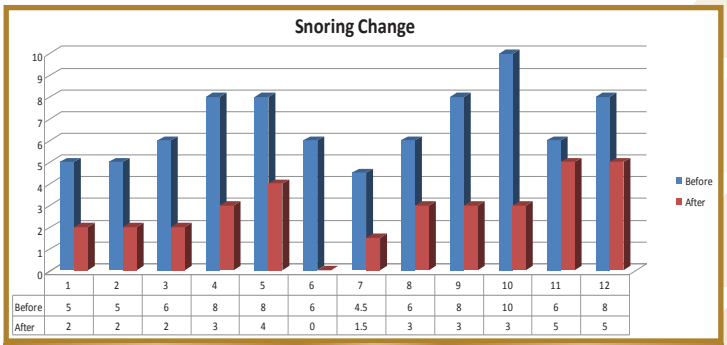
NIGHTLASE™ has a significant success rate in producing a positive change in sleep patterns. Research published by Miracki and Visintin[7] has shown that it can reduce and attenuate snoring, and provides an effective non-invasive modality to lessen the effects of Obstructive Sleep Apnea. As with any treatment, there are potential risks with laser treatment. However, the risks are minimal and certainly less then alternative therapies if the protocol is followed correctly. NIGHTLASE™ therapy is not a permanent alteration and lasts anywhere from 6-12 months and is easily touched up at follow up appointments.[20]

In 2013 we completed a pilot study that addressed snoring only with 12 patients. Twelve month include a follow up showed 30-90% reduction in snoring tone and volume. **(figure 2)** The lower percentages were smokers, obese patients and those with severe OSA. Follow up studies with polysomnography using HST are in process as are pharyngometer studies both of which have shown significant positive changes.

A recently published pilot research study by Lee and Lee[8] has shown through 3D CT imaging, the volumetric positive changes after Nightlase™ treatment to help support the clinical results, and the authors have follow up studies with 3D CT, polysomnography and a larger group of patients in process.

We are excited to present these modern, minimally invasive and more natural treatment modalities to the dental community. Using the Lightwalker laser, we can now offer our patients health improvements that reach beyond restorative and rehabilitative dentistry.

For more information got to www.fotona.com.



	1	2	3	4	5	6	7	8	9	10	11	12
Before	5	5	6	8	8	6	4.5	6	8	10	6	8
After	2	2	2	3	4	0	1.5	3	3	3	5	5

FIGURE 2

Financial disclosure
The author has no financial interest in the products mentioned in this article.

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