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## Treatment Options for Snoring

Snoring has been disturbing the sleep of humans for centuries. It is the noise of vibration of the tissues in the back of the throat, brought on by turbulence in the air stream. There are more than 300 patented devices designed to reduce snoring. These include attachments to the pajama shirt to keep the snorer off his back, chin straps to keep the mouth closed during sleep, dental devices to adjust sleepers' jaws, and electric probes to shock the snorer awake when the noise triggers the device.

Medical science has made major progress in understanding snoring and its effect on sleep. There are new technologies that allow us to silence the snoring in properly selected patients. These procedures are ideal for patients described as "social snorers." This term infers that snoring is not a symptom of significant obstruction, but that the noise is loud enough to disturb the sleep of others. Such snorers may be banished from the marital bedroom, or are unwelcome roommates on vacations and business trips.

The sound of snoring is the effect of air turbulence in breathing. The muscles of the throat structures, the palate, the uvula, and sometimes the tonsils, relax during sleep. This allows the airway to partially collapse, and these tissues become vibrating noise-makers as air moves across them. The most common cause of snoring is enlargement of the soft palate and uvula in the back of the mouth. Abnormalities in the tongue, adenoids, tonsils, and even congested nasal passages can contribute to the problem.

In most people who snore, the obstruction is mild and is not a threat to health. A small number of snorers suffer from a condition called obstructive sleep apnea. Poor sleep quality and excess daytime sleepiness in a person who snores are warning signs of sleep apnea. The sleep partner will often observe snoring noise interrupted by intervals of silence, during which the airway is totally obstructed. As blood oxygen levels fall, natural reflexes arouse the sleeper to a lighter plane of sleep and breathing resumes. The result is fragmented sleep, with little time spent in deep restful sleep. Episodes lasting over 10 seconds, occurring more often than seven times an hour, suggest a serious condition. Chronic oxygen deprivation during sleep can lead to heart and blood pressure problems. Inability to attain proper deep levels of sleep can cause personality changes and other symptoms of chronic sleep deprivation. Sleep apnea patients are not candidates for simple office procedures, as they often require more aggressive measures that deal with the obstructed airway. Research is currently underway to assess the long-term improvement in these patients treated with lasers and radio frequency.

Any adult who feels that snoring is a social problem should consider this procedure. As many as half of all adults snore at some time, and one in four is described as an habitual snorer. The best candidate is a person in good health whose snoring interferes with the sleep of others. Though often a source of humor or ridicule, marital discord and other problems can result from loud snoring.

We currently have two major tools in the treatment of social snoring; **Radio frequency waves** and **palate implants**. The laser has been in use for over 15 years, and has a proven track record. The problem with laser surgery is unacceptable levels of post-procedure pain. We have abandoned lasers as snoring treatment because of the pain involved. Radio frequency waves have been used for a shorter time, with a majority of patients showing significant improvement in snoring after a single treatment. The radio frequency waves are generated through an insulated needle placed deep in tissues of the palate. This sets up a healing response that causes a stiffening of the structures, avoiding the need for removal of tissue. While there is some swelling and discomfort for a few days after the procedure there is a dramatic reduction post operative pain for patients treated with radiofrequency rather than laser.

The Pillar implant is the newest technology, in which tiny woven inserts are placed in the soft palate. These add structural support to the soft palate and have the potential to become a permanent solution to the problem. Discomfort after placement is minimal. The procedures are performed in the office after injection of a local anesthetic, the same type used for dental work. The patient sits upright in a chair while the palate is treated. The anesthesia makes the procedure painless.

For Radiofrequency, a probe is placed under the surface into the soft palate, as radio frequency is generated. This raises the temperature of the tissues just enough to produce an area of coagulation. The total application takes less than 10 minutes. Over the next few weeks, the treated area is gradually absorbed, which reduces the volume of the palate and tightens the vibrating tissues. The Pillar implant is even quicker, as a special tool is used to place the implants into the proper palate site.

Pain after radio frequency treatment is mild, though there is some swelling of the throat that lasts a few days. If there are no associated health risks (diabetes, hypertension), we usually give a short course of cortisone to minimize the swelling. Patients usually don't have to interrupt work or social schedules after the procedure. Speech may be mildly altered for a few days due to swelling, and only minor adjustments to the diet are needed. Pillar implant patients are encouraged to take Ibuprofen the evening after the procedure, and little or no medication is required after that.

With proper selection, sixty-five percent of patients described a dramatic reduction in snoring within six weeks after a single Somnoplasty Procedure, the number rising to 85 percent after a second session. Pillar implant reports an 80 percent success rate after one procedure.

Complications are rare. Any throat surgery carries a slight risk of bleeding, but this is rare. Occasionally an open sore develops on the palate, which can be sensitive to acid or spices,

but these heal within several days, usually without consequence. If an implant becomes infected or dislodged, it is easily removed.

Because these procedures are currently recommended for persons without sleep apnea or other medical condition, they are viewed by medical insurers as cosmetic procedures. They are not covered by health insurance, and arrangements must be made for payment prior to starting the treatment course.