

# Snoring/Sleep Apnea

## Snoring

Forty-five percent of normal adults snore at least occasionally, and 25 percent are habitual snorers. Problem snoring is more frequent in males and overweight persons, and it usually grows worse with age.

More than 300 devices are registered in the U.S. Patent and Trademark Office as cures for snoring. Some are variations on the old idea of sewing a sock that holds a tennis ball on the pajama back to force the snorer to sleep on his side. (Snoring is often worse when a person sleeps on his back). Some devices reposition the lower jaw forward; some open nasal air passages; a few others have been designed to condition a person not to snore by producing unpleasant stimuli when snoring occurs. But, if you snore, the truth is that it is not under your control whatsoever. If anti-snoring devices work, it is probably because they keep you awake.

### What Causes Snoring?

The noisy sounds of snoring occur when there is an obstruction to the free flow of air through the passages at the back of the mouth and nose. This area is the collapsible part of the airway (see illustration) where the tongue and upper throat meet the soft palate and uvula. Snoring occurs when these structures strike each other and vibrate during breathing.

### People who snore may suffer from:

- \* Poor muscle tone in the tongue and throat. When muscles are too relaxed, either from alcohol or drugs that cause sleepiness, the tongue falls backwards into the airway or the throat muscles draw in from the sides into the airway. This can also happen during deep sleep.

- \* Excessive bulkiness of throat tissue. Children with large tonsils and adenoids often snore. Overweight people have bulky neck tissue, too. Cysts or tumors can also cause bulk, but they are rare.

- \* Long soft palate and/or uvula. A long palate narrows the opening from the nose into the throat. As it dangles, it acts as a noisy flutter valve during relaxed breathing. A long uvula makes matters even worse.

- \* Obstructed nasal airways. A stuffy or blocked nose requires extra effort to pull air through it. This creates an exaggerated vacuum in the throat, and pulls together the floppy tissues of the throat, and snoring results. So, snoring often occurs only during the hay fever season or with a cold or sinus infection.

Also, deformities of the nose or nasal septum, such as a deviated septum (a deformity of the wall that separates one nostril from the other) can cause such an obstruction.

Is Snoring Serious?

Socially, yes! It can be, when it makes the snorer an object of ridicule and causes others sleepless nights and resentment.

Medically, yes! It disturbs sleeping patterns and deprives the snorer of appropriate rest. When snoring is severe, it can cause serious, long-term health problems, including obstructive sleep apnea.

## **Obstructive Sleep Apnea**

When loud snoring is interrupted by frequent episodes of totally obstructed breathing, it is known as obstructive sleep apnea. Serious episodes last more than ten seconds each and occur more than seven times per hour. Apnea patients may experience 30 to 300 such events per night. These episodes can reduce blood oxygen levels, causing the heart to pump harder.

The immediate effect of sleep apnea is that the snorer must sleep lightly and keep his muscles tense in order to keep airflow to the lungs. Because the snorer does not get a good rest, he may be sleepy during the day, which impairs job performance and makes him a hazardous driver or equipment operator. After many years with this disorder, elevated blood pressure and heart enlargement may occur.

### **Can Heavy Snoring be Cured?**

Heavy snorers, those who snore in any position or are disruptive to the family, should seek medical advice to ensure that sleep apnea is not a problem. An otolaryngologist will provide a thorough examination of the nose, mouth, throat, palate, and neck. A sleep study in a laboratory environment may be necessary to determine how serious the snoring is and what effects it has on the snorer's health.

### **Snoring Treatment**

Treatment depends on the diagnosis. An examination will reveal if the snoring is caused by nasal allergy, infection, deformity, or tonsils and adenoids.

Snoring or obstructive sleep apnea may respond to various treatments now offered by many otolaryngologist-head and neck surgeons:

- \* Uvulopalatopharyngoplasty (UPPP) is surgery for treating obstructive sleep apnea. It tightens flabby tissues in the throat and palate, and expands air passages.

- \* Thermal Ablation Palatoplasty (TAP) refers to procedures and techniques that treat snoring and some of them also are used to treat various severities of obstructive sleep apnea. Different types of TAP include bipolar cautery, laser, and radiofrequency. Laser Assisted Uvula Palatoplasty (LAUP) treats snoring and mild obstructive sleep apnea by removing the obstruction in the airway. A laser is used to vaporize the uvula and a

specified portion of the palate in a series of small procedures in a doctor's office under local anesthesia. Radiofrequency ablation—some with temperature control approved by the FDA—utilizes a needle electrode to emit energy to shrink excess tissue to the upper airway including the palate and uvula (for snoring), base of the tongue (for obstructive sleep apnea), and nasal turbinates (for chronic nasal obstruction).

\* Genioglossus and hyoid advancement is a surgical procedure for the treatment of sleep apnea. It prevents collapse of the lower throat and pulls the tongue muscles forward, thereby opening the obstructed airway.

If surgery is too risky or unwanted, the patient may sleep every night with a nasal mask that delivers air pressure into the throat; this is called continuous positive airway pressure or "CPAP".

A chronically snoring child should be examined for problems with his or her tonsils and adenoids. A tonsillectomy and adenoidectomy may be required to return the child to full health.

### **Self-Help for the Light Snorer**

Adults who suffer from mild or occasional snoring should try the following self-help remedies:

- \* Adopt a healthy and athletic lifestyle to develop good muscle tone and lose weight.
- \* Avoid tranquilizers, sleeping pills, and antihistamines before bedtime.
- \* Avoid alcohol for at least four hours and heavy meals or snacks for three hours before retiring.
- \* Establish regular sleeping patterns
- \* Sleep on your side rather than your back.
- \* Tilt the head of your bed upwards four inches.

Remember, snoring means obstructed breathing, and obstruction can be serious. It's not funny, and not hopeless.

## **Injection Snoreplasty**

### **What Is Injection Snoreplasty?**

Injection snoreplasty is a nonsurgical treatment for snoring that involves the injection of a hardening agent into the upper palate. Army researchers from Walter Reed Army Medical Center introduced this procedure at the 2000 Annual Meeting of the American Academy of Otolaryngology – Head and Neck Surgery Foundation. Their early findings indicate that this treatment may reduce the loudness and incidence of primary snoring (snoring without apnea, or cessation of breath). The Academy neither endorses nor discourages the use of injection snoreplasty for the treatment of snoring.

Those seeking injection snoreplasty to reduce snoring should first be screened for obstructive sleep apnea or OSA (frequent cessation of breathing due to upper airway obstruction) by undergoing a sleep test. If sleep apnea is confirmed, other treatment may be recommended.

### **Treatment For Injection Snoreplasty**

Injection snoreplasty is performed on an outpatient basis under local anesthesia. After numbing the upper palate with topical anesthetic, a hardening agent is injected just under the skin on the top of the mouth in front of the uvula (upper palate), creating a small blister. Within a couple of days the blister hardens, forms scar tissue, and pulls the floppy uvula forward to eliminate or reduce the palatal flutter that causes snoring.

In some patients, the treatment needs to be repeated for optimum benefits. If snoring occurs from vibrations beyond the palate and uvula and/or obstructive sleep apnea is suspected, further testing and alternative treatment options may be advised. A thorough examination by an ear, nose and throat specialist is recommended to diagnose the source and type of snoring, and determine whether injection snoreplasty may be helpful.

### **Post-Treatment Follow-Up For Injections Snoreplasty**

After injection of the hardening agent, patients are observed in the otolaryngologist's office and then sent home. Tylenol and throat lozenges or spray are suggested for pain management. Patients can return to work the next day. Though snoring may continue for a few days, it should eventually lessen. A post-procedure sleep test may be administered to fully evaluate the effects of the procedure.

### **Possible Side Effects Of Injection Snoreplasty**

A residual sore throat or feeling that something is "stuck" in the back of the mouth may occur. Suggestions for treatment of sore throat include Tylenol and/or throat lozenges or spray.

### **Statement On The Use Of Sotradecol**

Sotradecol, a trade name for sodium tetradecyl sulfate, is the most common hardening agent used in injection snoreplasty. This agent is indicated by the Food and Drug Administration (FDA) for "intravenous use only" and "for small uncomplicated varicose veins of the lower extremities that show simple dilation with competent valves." Warnings include: 1) "severe adverse local effects including tissue necrosis," and 2) "allergic reactions, including anaphylaxis, have been reported that led to death."

## **Snoring Is A Problem**

Forty-five percent of normal adults snore at least occasionally, and 25 percent are habitual snorers. Thirty percent of adults over age 30 are snorers. By middle age, that number reaches 40 percent. Clearly, snoring is a dilemma affecting spouses, family members and sometimes neighbors.

Snoring sounds are caused when there is an obstruction to the free flow of air through the passages at the back of the mouth and nose. This area is the collapsible part of the airway where the tongue and upper throat meet the soft palate and uvula. When these structures strike each other and vibrate during breathing, snoring results.

## **Treatment For Snoring**

Snoring can be diagnosed as primary snoring (simple snoring) or obstructive sleep apnea. Primary snoring is characterized by loud upper airway breathing sounds during sleep without episodes of apnea (cessation of breath). Obstructive sleep apnea is a serious medical condition where individuals have frequent episodes of apnea during sleep, contributing to an overall lack of restful sleep and severe health risks including heart attack and stroke.

Various methods are used to alleviate primary snoring. They include behavior modification (such as weight loss), surgical and non-surgical treatments, and dental devices.

Surgical treatments for primary snoring include: laser assisted uvulopalatoplasty (LAUP), an outpatient treatment for primary snoring and mild OSA that involves use of a laser under local anesthesia to make vertical incisions in the upper palate, shortening the uvula and lessening airway obstruction; and radiofrequency volumetric reduction of the palate, a relatively new procedure performed in an otolaryngologist's office that utilizes targeted radio waves to heat and shrink tissue in the upper palate.