

# HIGHLIGHT

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## Sleep Apnea: Responsibilities and Opportunities WRITTEN BY CATHY JAMESON

As a dental professional, you are a primary caretaker of the head and neck, as well as the oral cavity. Therefore, you have a responsibility to identify and recommend treatment for a major malady impacting millions of Americans: Sleep Apnea. In this two-part series on Sleep Apnea, we will explore the dentist's role in helping patients who suffer from Sleep Apnea and the possible options for care. In Part I, we will review the specifics of Sleep Apnea: the types, symptoms and treatments. In Part II, we will review the devices available for treatment.

### WHAT IS SLEEP APNEA?

Dr. Robert Talley of Norman, Oklahoma lectures worldwide on the subject of TMJ, head and neck craniofacial pain, and sleep disorders. He says the following, "When the muscles of the jaw, soft palate and the tongue become too relaxed during sleep, they can sag and partially or completely block the airway. As a person struggles to breathe, the body becomes distressed and becomes partially awake, nearly every time this event occurs. These episodes can occur hundreds of times each night, keeping the person from reaching the deep, restorative sleep required and putting a great deal of stress on the heart. Since this can have serious consequences, anyone who is concerned about the quality of their sleep is urged to contact their physician or a dental professional with advanced training in dental sleep medicine." (Talley, 2017)

Dr. Jill Wade of Frisco, Texas who provides Sleep Apnea care for her patients says the following, "I feel like one of our responsibilities as a head and neck specialist is to evaluate the airway space, 'our zone of expertise.' I often find that true airway obstructions are the root cause of the Sleep Apnea. For example, a deviated septum, large adenoids, or tonsils.

Dealing with the actual obstruction rather than placing everyone on a CPAP or advancement device may be the best option. However, that doesn't mean I don't believe in these incredible tools. They are often a necessity, because sleep and appropriate oxygen levels to the brain are absolutely critical in obtaining optimal health. Determining the type and cause of the Sleep Apnea is essential. Then, and only then, can the appropriate device be prescribed."

### WHAT SHOULD A DENTAL SLEEP EXAM INCLUDE?

Dr. Talley recommends that a patient look for a dentist who is certified in Dental Sleep Medicine. He says that "At a minimum, your dental sleep exam should include:

- Medical history
- Dental history
- Personal & family history
- Physical evaluation plus a Pharyngometer/Rhinometer test to evaluate the airway

In addition to studying the medical and dental histories, an examination of the soft tissues in the mouth, throat, neck, and nose should be performed. The purpose of this clinical evaluation is to:

- Determine the degree of laxity in those tissues
- Find out how they may be obstructing breathing during sleep"

Dr. Talley goes on to say, "Since Sleep-Disordered Breathing can also occur as a result of improper alignment of the jaw and structures within the mouth, examine the temporomandibular joint (TMJ) as an important part of every sleep patient evaluation. Depending on the complexity and severity of a patient's sleep concern, we may recommend that the patient seek a referral to an overnight sleep lab for a diagnostic polysomnogram (i.e., a sleep study) to confirm the diagnosis. If that should be necessary, we assist the patient in the process by providing names of Sleep Physicians and Sleep Labs that we work with regularly."

According to Carl E. Hunt, director of the National Center on Sleep Disorders Research, anyone who suffers from non-restful sleep will benefit from a thorough exam and, if indicated, treatment by a dentist with advanced training in Dental Sleep Medicine. Hunt says that 70 million Americans suffer from sleep disorders of one kind or another.

### EARLY DIAGNOSIS IS KEY

If sleep disorders go undiagnosed and untreated, their effects on health can be far more serious than simply feeling tired and irritable. For example, patients with untreated Obstructive Sleep Apnea are at:

- 2x the risk of developing high blood pressure
- 3x the risk of heart attack
- 4x the risk of stroke

Prompt and proper diagnosis is an important first step to treating any and all forms of Sleep Apnea. Problems associated with untreated Sleep Apnea include hypertension, coronary artery disease, myocardial infarction, stroke, psychiatric problems, impotence, cognitive dysfunction, memory loss, and death. (Talley, 2017)

There are three types of Sleep Apnea: **Obstructive Sleep Apnea, Central Sleep Apnea, and Mixed Sleep Apnea.**

### OBSTRUCTIVE SLEEP APNEA

Here is a brief definition of each as described by the Alaska Sleep Clinic (2015): "Obstructive Sleep Apnea (OSA) is the most common form of Sleep Apnea. However, it is believed that only about 10% of people with OSA seek treatment, leaving the majority of OSA sufferers undiagnosed."

### OSA Symptoms

Obstructive Sleep Apnea is caused by partial or complete blockage of the airways during sleep. During sleep, a person's throat muscles relax allowing the tongue and/or fatty tissues of the throat to fall back into the airways and block airflow. During an apnea event, air is restricted from moving beyond the obstruction - reducing blood flow to the brain. This in turn signals the brain to partially awaken from sleep to signal the body that it needs to breathe. This is often followed by a loud gasping, choking, or snorting sounds as the person takes a deep enough breath to fight past the obstruction.

Once a breath is taken the brain returns to sleep, and the process begins once again. This process can occur just a few times a night or hundreds of times a night depending on the severity of the condition.

- **Mild OSA-** The sufferer experiences 5-14 episodes of interruptions in breathing in an hour
- **Moderate OSA-** The sufferer experiences 15-30 episodes of interruptions in breathing in an hour
- **Severe OSA-** The sufferer experiences 30 or more interruptions in breathing in an hour

Other symptoms of Obstructive Sleep Apnea include:

- Snoring that is loud, disruptive, and regular is one of the most obvious signs of potential OSA
- Frequent breaks in breathing caused by an obstruction  
These cessations are often followed by choking or gasping noises as the body's respiratory system fights through the blockage
- Excessive daytime sleepiness caused by frequent interruptions of sleep
- Morning headaches caused from the loss of oxygen in the bloodstream that flows to the brain as a result of the irregular breathing at night
- Restless sleep. Sufferers of OSA often have fitful sleep as their mind and body are constantly awakened throughout the night, pulling them out of the much needed stages of non-REM and REM sleep
- Depression or irritability. Lack of regular quality sleep can wreak havoc on a person's mental well-being. Sufferers of OSA often find themselves feeling short-tempered, and in time it can lead to more severe symptoms of depression

#### OSA Causes and Risk Factors

- **Weight-** In many cases a person's body weight is directly linked to having Obstructive Sleep Apnea
- **Age-** As people age their muscles begin to lose muscle tone, including the muscles of the throat
- **Enlarged tonsils or adenoids** are the leading cause of Obstructive Sleep Apnea in children but can also affect adults who never had a tonsillectomy when they were younger
- **Natural causes-** Some people can be genetically predisposed to having a narrower throat or may have an enlarged tongue that falls back into their airway
- **Frequent alcohol use-** Alcohol relaxes the muscles in the body, and this includes the throat muscles as well
- **Smoking-** Smoke is an irritant to the lungs, throat, and esophagus. It can cause inflammation and fluid retention in the upper airways that can impede airflow

#### OSA Treatment

- Positive airway pressure (PAP) Therapy
  - o Continuous positive airway pressure (CPAP)
  - o Automatic positive airway pressure (APAP)
  - o Bilevel positive airway pressure (BiPAP)
- Oral Appliances
  - o Mandibular advancement devices (MADs)
  - o Tongue retaining mouthpieces
- Surgery

#### WHAT IS CENTRAL SLEEP APNEA?

Central Sleep Apnea (CSA) occurs when the brain temporarily fails to signal the muscles responsible for controlling breathing. Unlike OSA, which can be thought of as a mechanical problem, CSA is more of a communication problem.

CSA is less common than OSA. CSA is often caused by medical problems and conditions that affect the brain stem. These different causes often lead to varying symptoms and different types of CSA.

#### CSA Symptoms

- Stopping breathing or irregular breathing during sleep
- Shortness of breath leading to awakenings
- Excessive daytime drowsiness
- Chronic fatigue
- Morning headaches
- Poor/Restless Sleep
- Difficulty concentrating
- Mood changes
- Snoring

#### CSA Causes or Conditions

- Parkinson's disease
- Medical conditions that affect the brain stem including brain infection and stroke
- Obesity
- Certain medications
- Heart failure

#### CSA Risk Factors

- Men are more likely to develop CSA than women
- Older adults, especially those over 65
- People with heart disorders
- People who have had a stroke or have a brain tumor
- People sleeping at higher altitudes
- People who use opioid medications are at greater risk

#### CSA Treatment

- Treating existing conditions causing CSA is the first line of treatment
- Continuous positive airway pressure (CPAP)
- Bilevel positive airway pressure (BPAP). Bilevel positive airway pressure is similar to CPAP except that BPAP adjusts the level of air being delivered depending on whether the patient is inhaling or exhaling
- Adaptive-Servo Ventilation (ASV). The Adaptive-Servo Ventilation device monitors breathing and adjusts air flow appropriately through the mask to match how the patient would be normally breathing if awake
- Medications. Certain medications, may be prescribed when positive airway pressure therapy fails to be efficient

#### WHAT IS MIXED SLEEP APNEA? (AKA COMPLEX SLEEP APNEA)

Mixed Sleep Apnea is a combination of both Obstructive and Central Sleep Apnea symptoms.

During CPAP treatment for the patients believed to have OSA, the patient's airways were successfully splinted open and free from obstructions, but the patients continued to have difficulty breathing while asleep. Their symptoms of OSA shifted to symptoms of CSA while CPAP therapy was being administered.

#### MSA Treatment

Optimal treatment options for Mixed Sleep Apnea still need to be refined. Currently one of the best treatments is still CPAP devices, but set at the lowest possible pressure setting that successfully keep the airways free from obstructions, but don't allow CSA symptoms to develop.

#### IN PART II

In PART II of this series, we will be exploring dental appliances and their benefit to patients who are candidates for this type of treatment.

#### REFERENCES

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