Obstructive sleep apnea is characterized by repetitive pharyngeal collapse during sleep, which causes the patient to repeatedly awake throughout the night. Recent data shows connections between neurological and cardiovascular conditions that could potentially be caused by obstructive sleep apnea in an individual. To regulate their breathing, patients suffering from sleep apnea will recurrently be aroused from sleep, causing their sleep to be fragmented. Sleep is such an important function of the human body, and lack of adequate sleep can lead to systemic hypertension, myocardial infarction, cerebrovascular events, and even congestive heart failure.

The risk factors for those who could have sleep apnea are obesity, of the male gender, and increasing age. Obesity is present in over 70% of cases of sleep apnea due to compromised function of their respiratory system, along with more weight pulling down and shrinking the patient’s airways. Men are more likely to develop sleep apnea than women, and there are five men for every woman diagnosed with the disorder. Social habits such as smoking cigarettes, which affect the upper airway, and drinking alcohol, which suppresses the pharyngeal dilator muscle, determine whether an individual is more likely to develop sleep apnea.

The most common form of treatment for sleep apnea is CPAP therapy, which is extremely effective with patients who have severe sleep apnea. For other patients who do not suffer from such severe sleep apnea, CPAP adherence is low because of the size, noise, and discomfort with the machine. While CPAP is more effective in treating severe cases, Oral Appliance Therapy (OAT) is excellent in treating mild to moderate cases of sleep apnea. According to a study in which groups of patients used CPAP and OAT, more patients were compliant with the oral appliance, and more patients stopped using the CPAP machine. Oral appliances are preferred by patients to CPAP therapy, and should be considered for those who fail or refuse to use the machine. A spectrum for sleep apnea, as opposed to an abrupt categorization method, will allow patients to get the best treatment that is specific to their needs.

Oral Appliances for Obstructive Sleep Apnea

Oral appliances have arisen in the sleep medicine field as viable alternatives to continuous positive airway pressure (CPAP) therapy. An oral appliance is a custom-fitted device that reduces upper airway collapse by advancing the patient’s mandible, allowing the patient to breathe easier through the night. Overwhelming evidence shows that oral appliance therapy (OAT) can improve obstructive sleep apnea in many patients, even some who have more severe degrees of sleep apnea. Oral appliances are generally well-tolerated, especially when compared to the amount of people who tolerate CPAP. The use of a CPAP machine is considered superior in reducing OSA in patients, however not many people are CPAP compliant, and adherence is very low.

There are various forms of oral appliances, all of which manipulate the jaw in different ways. The most popular is the mandibular advancement device, but others such as mandibular advancement splints and mandibular repositioning appliances are also in use. Oral appliances prevent the collapse of the airways by altering the position of the patient’s tongue and jaw. The doctor uniquely fits oral appliances to the patient’s mouth through the use of dental casts and precise customization. There also exist thermoplastic oral appliances, which are molded by biting down on a hot mouth guard-like device and then cooled. The efficacy of the thermoplastic devices is much lower than that of the custom-fitted device, the former of the two having lower treatment success and adherence. A large majority of patients tested with both forms of oral appliances preferred and continued to use the custom-fitted appliance.

The use of oral appliances has become one of the industries first lines of treatment in mild and moderate cases of sleep apnea, after the American Academy of Sleep Medicine did extensive research into their usage. Oral appliances are even helpful and improve the patient’s condition in more severe cases, specifically those in which the patient rejects CPAP therapy.

The side effects from using oral appliances include excessive salivation, mouth dryness, tooth pain, and gum irritation, however these usually alleviate themselves after around two months. Some patients experience negligible occlusal changes, although sometimes patients report an improvement in their bite.

While both CPAP therapy and oral appliance therapy work well, there are clear differences between the two. CPAP may have the best overall relief statistics, but less people actually continue to use CPAP after a year. Oral appliance therapy is better at alleviating oxygen desaturation in patients, and there is little difference in the effects each one has on blood pressure. When used in combination, oral appliances become a useful complement to CPAP therapy compared to the CPAP machine on its own. The usage of oral appliances throughout dental medicine is on the rise because of how effective it is, as well as how many more people actually learning about its benefits.


*Oral Appliance Therapy as an alternative to* CPAP and is covered by Medicare and most medical insurances
Can Oropharyngeal Exercises Affect Sleep Apnea

Obstructive sleep apnea has become a significant health issue within the decade, and many people, doctors and patients alike, are searching for different ways to treat their disorder. For years, the most effective treatment was believed to be CPAP therapy, but technologies and mentalities are changing as more people are shying away from the CPAP and looking for alternatives.

These alternatives, such as oral appliance therapy, weight loss, and even surgery have revolutionized the way people saw their initial diagnosis. Another new alternative that doctors have theorized is to exercise the muscles of the upper airway.

Since these upper airway muscles play a large role in maintaining the upper airway, researchers hypothesize the possibility of being able to affect a patient’s sleep apnea simply by performing exercises. The exercises studied included isometric and isotonic exercises involving the tongue, soft palate, pharyngeal wall, and functions of suction, breathing, chewing, and swallowing.

The study consisted of 31 eligible patients who were middle-aged, obese or overweight males, all of which had been diagnosed with obstructive sleep apnea. The men were split into two randomly chosen groups, one of which was the control. The other group of men was to perform the oropharyngeal exercises, and have their apnea/hypopnea indexes observed.

This study was the first to fully investigate the effects that the upper airway exercises had on obstructive sleep apnea, and it was successful. The patients who performed the exercises reduced the severity of their obstructive sleep apnea, all without the use of a CPAP machine. This study provides evidence for the claim that muscle training can help alleviate the symptoms of obstructive sleep apnea, allowing for a better, more restful night’s sleep.

The Effects of Obstructive Sleep Apnea on the Cardiovascular System

Obstructive sleep apnea has extremely high rates of morbidity and mortality due to the effects it has on the cardiovascular system, and accidental deaths (such as falling asleep at the wheel of a car or while operating machinery). Whether or not obstructive sleep apnea had any long-term affects on a patient’s cardiovascular system has always been a topic of debate among doctors and researchers alike.

Researchers compiled the data of several snorers, untreated obstructive sleep apnea patients, sleep apnea patients who had treatment, and healthy men to determine whether or not those variables affected their predisposition to having a fatal or nonfatal cardiovascular event. These men were matched for age and body mass index in order to keep the data relatively uniform, save for their sleeping habits. The researchers also used the patients’ AHI (apnea/hypopnea index) as an indicator of how severe their sleep apnea was, to determine how the severity affected their risk of cardiovascular events. The findings revealed that men who suffered from severe obstructive sleep apnea were more at risk of experiencing a fatal cardiovascular event such as a myocardial infarction or stroke. Those who were treated for their sleep apnea were at a significantly lower risk when compared to those who did not undergo treatment. The men who were simple snorers, i.e. did not suffer from obstructive sleep apnea, were not at a significantly heightened risk for either fatal or non-fatal cardiovascular events.

The results of the study suggest that those who have obstructive sleep apnea but are not currently in treatment for it are at the highest risk of fatal and non-fatal cardiovascular events. There is a clear correlation between the severity of the sleep apnea and cardiovascular risk, but sleep apnea treatment reduces this risk. A great portion of people who are afflicted with sleep apnea never know it, and this study shows that when the disorder goes undiagnosed and untreated, more dire complications may arise.