Treating OSA

Once recognized and identified, OSA is highly treatable, either with surgery or nonsurgical approaches.

Obviously, non-surgical methods should be tried first –

Behavioral changes

- Change sleeping position (sleep on side or stomach).
- Change sleeping environment (mattress, light level, temperature, etc.).
- A 10% weight loss will decrease the OSA Apnea-Hypopnea Index (AHI) by 25%.

Dental appliances

Dentists specialized in sleep medicine (American Academy of Dental Sleep Medicine) are trained in the use of oral appliance therapy for the treatment of obstructive sleep apnea and snoring.

- Oral appliances (OA) using mandibular repositioning are highly effective for mild to moderate OSA and snoring.

The FAA's medical certification guidance is based upon recommendations and criteria established by the American Academy of Sleep Medicine (AASM) (http://www.aasmnet.org/).

Continuous positive airway pressure (CPAP) machine

- Probably the best, non-surgical treatment for reducing AHI when used consistently over six hours a night
- Uses air pressure to hold the tissues open during sleep
- Decreases daytime sleepiness, as measured by surveys and objective tests
- Improves cognitive functioning on tests

The FAA's guidance is based upon recommendations and criteria established by the American Academy of Sleep Medicine (AASM) (http://www.aasmnet.org/).

Surgical Methods

These can be very significant surgeries that don't always succeed and can lead to side effects. They should be used only after non-surgical methods have failed.

- Nasal airway surgery: Corrects for swelling of the turbinates, septal deviation, and nasal polyps.
- Palate implants: Stiffen the palate to prevent it from collapsing.
- Uvulopalatopharyngoplasty (UPPP): Prevents collapse of the palate, tonsils, and pharynx.
- Tongue reduction surgery: Decreases the size of the base of the tongue.
- Genioglossus advancement: Pulls the tongue forward to enlarge the airway.
- Maxillomandibular Advancement (MMA), Moves the upper jaw (maxilla) and lower jaw (mandible) forward.

The Bottom Line

If you experience one or more symptoms of obstructive sleep apnea, it is recommended that you consult a doctor, since treatment for OSA is effective for decreasing fatigue and increasing aviation safety.

What about your medical certificate? If your OSA is treatable, you can maintain your airman medical certificate and continue to enjoy your aviation career.

However, flying with untreated OSA constitutes an unnecessary risk and can become a safety-of-flight issue.

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Federal Aviation Administration

Obstructive Sleep Apnea (OSA)

Overview for the Aerospace Community

Asleep at the controls

On a daytime flight in 2008, a commercial aircraft with three crewmembers and 40 passengers flew past its destination airport after both the captain and first officer fell asleep.

The pilot awoke and turned back to the destination airport, where all deplaned safely--but behind schedule.

The National Transportation Safety Board (NTSB) determined that contributing factors to the incident were the captain's undiagnosed obstructive sleep apnea (OSA) and the flight crew's recent work schedules, which included several days of early-morning start times.

Up to that time, OSA was relatively unknown outside the medical community.

Today, OSA is recognized as the primary source of sleep-disordered breathing (SD) and a major contributor to many possible health-related chronic health conditions.

The NTSB listed OSA on its "Most Wanted" list of Transportation Safety Improvements for 2015 in North America:

- 10-15% of females and 20-30% of males have OSA
- 15% of males and 5% of females are confirmed through diagnosis

OSA affects:

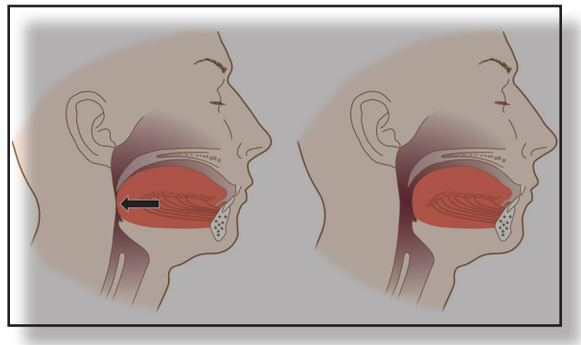
- 70% of morbid obese patients
- 70% of patients with Type II diabetes
- 40% of patients with hypertension
- 30% of patients with morning headache
- 20% of veterans

The pathophysiology of OSA

Apnea means "being without respiration."

Obstructive sleep apnea is characterized as a repetitive upper airway obstruction during sleep, as a result of narrowing of the respiratory passages.

Mild OSA is defined as an Apnea-Hypopnea Index (AHI) of 5-15/hr and severe OSA as an AHI > 30/hr. Moderate OSA would fall between these ranges.



Most people with this disorder are overweight and have higher deposits of adipose (fatty) tissue in their respiratory passages, and the size of their soft palates and tongues are larger than average.

These conditions decrease the size of the upper airway and decrease airway muscle tone, especially when sleeping in the supine (back down and horizontal) position.

Gravity can pull tissue down and over the airway, further decreasing its size, impeding air flow to the lungs during inhalation.

The major impact of OSA

Snoring can result when the airway becomes partially obstructed. With further tissue obstruction of the airway, there may be complete occlusion. Whether the obstruction is partial (hypopnea) or total (apnea), the patient struggles to breathe and is aroused from sleep.

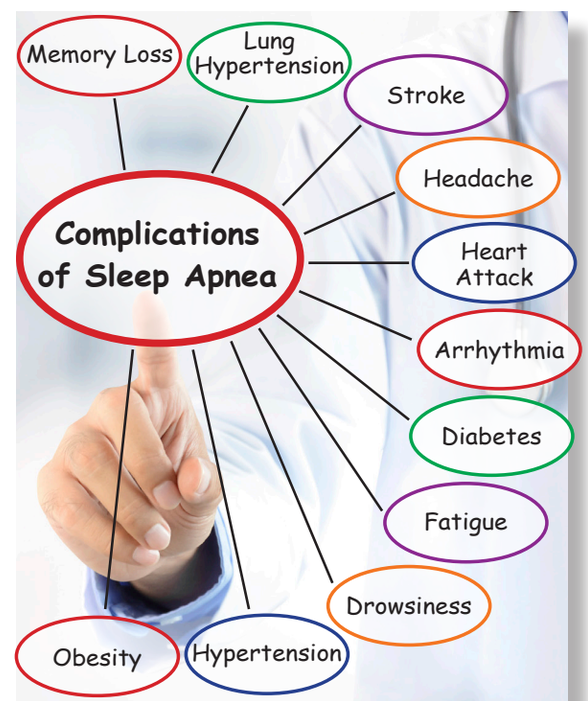
Often, these sleep interruptions are unrecognized, even if they occur hundreds of times a night. The real danger is that the OSA sufferers may not realize the condition and are only aware that they typically awaken feeling sleepy and tired.

Losing sleep is more than a simple inconvenience. Good, sound sleep is essential for good health and clear mental and emotional functioning.

Additionally, OSA is associated with a reduction in blood oxygen levels feeding the brain, which, of course, is a major health concern for neurocognitive deficit.

Repetitive decreases in blood oxygen levels associated with OSA may eventually increase:

- Blood pressure
- Strain on the cardiovascular system
- Risk of heart attack
- Risk of stroke
- Risk of neurocognitive decline
- Diabetes



A potential problem in flight?

The implications for pilots and crewmembers are significant.

It has been suggested that people with mild-to-moderate OSA can show performance degradation equivalent to 0.06 to 0.08% blood alcohol levels, which is the measure of legal intoxication in most states.

Most pilots will not fly intoxicated, but OSA sleep deprivation may be causing the equivalent effects! Further exacerbating the problem are time zone changes and post-flight alcohol consumption, which can inhibit wakefulness.

The NTSB reported a six fold increase in the risk of aviation crashes for pilots with OSA.

Normally, when you stop breathing while asleep, the brain automatically sends a wake-up call after about 10 seconds, and you wake up, gasping for air.

Multiple time zone changes and alcohol consumption inhibit arousal mechanisms and may result in oxygen deprivation of 30 seconds or longer before you heed the wake-up call. When you add up the oxygen starvation resulting from many occurrences per night, along with the subsequent arousals, the effect is significant fatigue.

Recognizing OSA

Typically, a person suffering from OSA is not aware of the condition.

The only way it can be objectively detected is through various forms of sleep studies. A complaint of loud and excessive snoring may be an important clue, since that is characteristically the first sign of OSA.

Other symptoms suggesting OSA include:

- Difficulty in concentrating, thinking, or remembering
- Daytime sleepiness, fatigue, and the need to take frequent naps
- Headaches
- Irritability
- Short attention span