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The Global Voice of Pilots

Medical Briefing Leaflet

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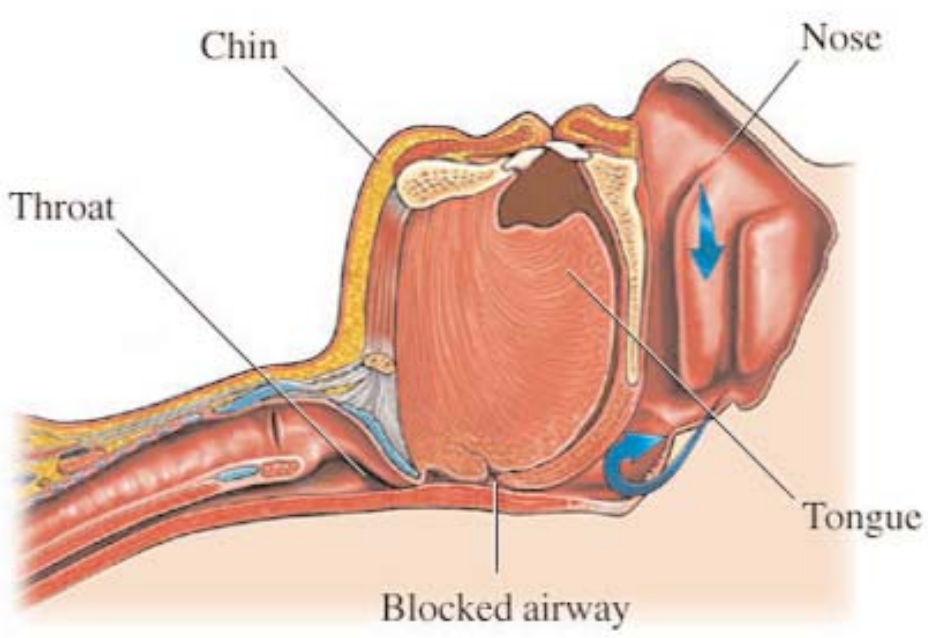
# Sleep Apnoea information for pilots

## *Introduction*

The prevalence of sleep apnoea in adults is estimated to be seven percent. In contrast, in the US Federal Aviation Administration (FAA) records the prevalence of sleep apnoea in Class I medical certified pilots is only 0.5 percent. Thus, sleep apnoea seems to be badly under diagnosed within pilot community. As sleep apnoea results in daytime sleepiness, un-diagnosed it can pose a significant safety risk in aviation.




## *Definition*

Sleep apnoea is a sleep disorder characterised by pauses in breathing during sleep. The standard definition of any apnoeic event includes a minimum 10 second interval between breaths, with either a neurological arousal (a 3-second or greater shift in EEG frequency, measured at C3, C4, O1, or O2), a blood oxygen de-saturation of 3-4% or greater, or both arousal and de-saturation. The Apnoea-Hypopnea Index (AHI) is expressed as the number of apnoeas and hypopnoeas per hour of sleep.

## *Symptoms*

Snoring is almost a uniform finding in an individual with sleep apnoea, but it does not mean that everyone who snores has sleep apnoea. However, the loudness of the snoring is not indicative of the severity of obstruction. If the upper airways are tremendously obstructed, there may not be enough air movement to make much sound. The sign that is most suggestive of sleep apnoeas occurs if snoring stops. The sleep is often restless and of poor quality and, as a result, patients can suffer from day-time sleepiness.

## *Diagnosis*

Diagnosis is done by home oximetry or polysomnography in a sleep clinic. Pulse oximetry is a non-invasive method allowing the monitoring of the oxygenation of a patient's hemoglobin. Polysomnography (PSG), also known as a sleep study, is a multi-parametric test used in the study of sleep and as a diagnostic tool in sleep medicine. The test result is called a polysomnogram, also abbreviated PSG. Polysomnography is a comprehensive recording of the biophysiological changes that occur during sleep. It is usually performed at night, when most people sleep, though some labs can accommodate shift workers and people with circadian rhythm sleep disorders and do the test at other times of day. The PSG monitors many body functions including brain (EEG), eye movements (EOG), muscle activity or skeletal muscle activation (EMG) and heart rhythm (ECG) during sleep. After the identification of the sleep disorder sleep apnea in the 1970s, the breathing functions respiratory airflow and respiratory effort indicators were added along with peripheral pulse oximetry.

The CPAP device, which keeps the patient's airway open during sleep by means of a flow of pressurized air into the throat, along with OAT is one of the common tratments for sleep apnoea, and an alterantive to surgery.

## *Treatment*

In mild cases of obstructive sleep apnoea, use of a specially shaped pillow or shirt may reduce sleep apnoea episodes, usually by causing users to sleep on the side instead of on the back or in a reclining position instead of flat. Also lifestyle changes, such as avoiding alcohol or muscle relaxant, losing weight, and quitting smoking might be beneficial. However, usually sleep apnoea needs more advanced treatment i.e. continuous positive airway pressure (CPAP) device, Oral Appliance Therapy (OAT) or surgery.

The CPAP device keeps the patient's airway open during sleep by means of a flow of pressurised air into the throat. The CPAP mask is a bit similar to the oxygen mask and the devices are light-weighted and quiet. Therefore CPAP is the most commonly used treatment for sleep apnoea. Dentists specialising in sleep disorders can prescribe Oral Appliance Therapy (OAT). The oral appliance is a custom made mouthpiece that shifts the lower jaw forward which opens up the airway. OAT is usually successful in patients with mild to moderate obstructive sleep apnoea. For patients who do not tolerate or fail non-surgical measures, there are several surgical treatments to anatomically alter the airway. The surgical treatment, off course, needs to be individualised in order to address all anatomical areas of obstruction.

## *Sleep apnoea and aviation*

Sleep apnea syndrome allows pilot to continue flying if the disease is treated. For some reason there is no mention about sleep apnoea in the ICAO regulations, but in JARs and also in the future EASA regulation the text is similar.

***JAR–FCL 3.160 Respiratory system – Disorders (g)*** *Applicants with unsatisfactorily treated sleep apnoea syndrome shall be assessed as unfit. [Amdt.1, 01.12.00; Amdt.5, 01.12.06]*

Clearly, pilots who suspect that they might be suffering from sleep apnoea would do well to consult with their doctor for diagnosis and treatment.