

News on sleep apnea for the commercial trucking industry

Sleep Apnea and Type 2 Diabetes

Recent research demonstrates that there is the likelihood of a relationship between type 2 diabetes and obstructive sleep apnea (OSA), which is the most common form of sleep disordered breathing.

The IDF, International Diabetes Federation, consensus statement on sleep apnea and type 2 diabetes wants to raise awareness of the association between these two conditions, which have significant implications on public health and on the lives of individuals.

A few facts:

- Obstructive Sleep Apnea (OSA) accounts for over 80% of cases and is the most common form of sleep-disordered breathing.
- Estimates suggest that up to 40% of people with OSA will have diabetes, but the incidence of new diabetes in people with OSA is not known.[i]
- In people who have diabetes, the prevalence of OSA may be up to 23%[ii], and the prevalence of some form of sleep disordered breathing may be as high as 58%.[iii]



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PPD: Protecting Professional Drivers

is a production of Precision Pulmonary Diagnostics, specializing in premium news and analysis on sleep apnea for the commercial trucking industry, and is published 2-4 times a year.

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Precision Pulmonary Diagnostics (PPD), provides professional screening for drivers who are at risk for sleep apnea. This is a HIPPA-compliant, online tool customized to a company's requirements.

Once a driver has been diagnosed with sleep apnea, PPD will provide local diagnostic services with the ease of Web-based scheduling and quick, reliable turn-around — from diagnosis to treatment.

Drivers who require treatment will be fitted for and provided with a CPAP mask, flow generator, and heated humidifier for nightly use.

In order to ensure drivers are using their masks correctly, PPD has partnered with a leading manufacturer of CPAP equipment, masks, and the only provider of a patented wireless compliance monitoring system.

The wireless compliance monitoring system provides daily information of CPAP use, efficacy, and allows real-time troubleshooting of any problems your drivers may be experiencing. With this data, we can enhance your drivers' CPAP acceptance and long-term compliance. In short, our protocols can maximize your results and your return on investment.

Dear Readers,

Recently Sysco Foods, headquartered in Houston, TX, has decided to join the "PPD family" of commercial carriers offering a comprehensive sleep apnea management solution for its employed drivers. We are honored that Sysco Foods has chosen PPD and we welcome their drivers who will be participating in the program.

Unrecognized sleep apnea is very common in commercial drivers – approaching a prevalence of 28% in a 2002 study commissioned by the FMCSA. Symptoms may include daytime fatigue or sleepiness, inattentiveness while driving, loud snoring, and even irritability. Sleep apnea occurs when your tongue and soft palate collapse onto the back of your throat during sleep. This blocks your airway and, when your oxygen level drops low enough, it forces your brain to move out of deep sleep to partially awaken you. You awaken repeatedly with a loud gasp and return to sleep.

Obstructive sleep apnea can lead to other health problems, including cardiovascular disease and high blood pressure. Additionally, sleep apnea and diabetes are "linked" in several ways. Central obesity - excess weight around the middle - is a risk for diabetes as well as sleep apnea. Insulin resistance syndrome - a condition common in people with diabetes - is also commonly found in people with sleep apnea. When we don't breathe deeply enough, it increases hormones in the body that raise blood sugar levels and impair the body's ability to process excess blood sugar.

How do you know you have sleep apnea? Be tested in the comfort of your home or truck with a portable testing device to monitor and measure how you breathe (or not). There are a lot of physiological things that happen while sleep disordered people snore. Oxygen and blood flow are reduced, blood pressures rises and heart irregularities occur. All in all, it's not a very restful sleep. The good news is the condition is successfully treated nearly 100 percent of the time. The most effective and successful treatment is called CPAP, which stands for Continuous Positive Airway Pressure. This mask delivers air pressure and keeps your airway open while sleeping, resulting in longer periods of uninterrupted sleep. Even better news is that successful treatment of sleep apnea improves other medical conditions if present, and/or reduces the chances of those conditions developing in the future. For example, CPAP helps control blood sugar levels by helping get more oxygen to the body. Risk factors for heart disease are also improved. For example, a recent study of sleep apnea patients who used CPAP showed significant reductions in blood pressure, total blood cholesterol levels and insulin resistance, a precursor to diabetes.

PPD is dedicated to improving the health and safety of all commercial drivers. We are proud that our efforts within this community are raising the awareness of, and how worthwhile treatment is for sleep apnea. The initiatives of Schneider National, Swift Transportation and Sysco Foods are commendable and represent a tangible commitment from these employers towards improving the welfare of their drivers.

Sleep Well and Work Better!

Mark B. Berger, MD FCCP
President
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Insomnia Linked to Sleep Apnea

Research suggests insomnia and sleep apnea co-occur more frequently than expected.

Research suggests insomnia and sleep apnea co-occur more frequently than expected. A new study to be published in the journal *SLEEP* (December 2012) suggests nighttime awakenings experienced by people with chronic insomnia might be caused by sleep breathing problems.

The Sleep and Human Health Institute (SHHI) in Albuquerque, NM conducted the study on 20 patients who met diagnostic criteria for an insomnia disorder, denied having any classic symptoms of sleep disordered breathing (i.e.- loud snoring, apneas), and had no previous sleep testing. Patients in the study reported that awakenings, which cause or contribute to their insomnia, were usually caused by stress, nightmares, trips to the bathroom, racing thoughts, physical discomfort, worries, anxiety, or for unknown reasons.

However, when diagnostic polysomnography (sleep study) tests were conducted on each of the 20 patients, 478 of 531

(90%) total objective awakenings for these patients were directly preceded by sleep breathing events. Only 10% of awakenings were caused by non-breathing factors (leg jerks, laboratory interaction, or spontaneous). Of the 478 breathing-related awakenings, 30 resulted in an awakening interval greater than 5 minutes, a duration which increases the likelihood of an insomnia episode. All 30 of these extended awakenings were preceded by a breathing event.

The results of the study by SHHI furthered their nearly 20 years of investigation towards understanding the link between insomnia and sleep-disordered breathing, a co-morbidity that has been largely overlooked by the scientific community. "We have known for nearly two decades that breathing plays an unexpected role in insomnia in general and sleep interruptions in particular, but we were surprised that 90% of awakenings were preceded by breathing events." said Dr. Barry Krakow, principal investigator on the project.

In a recent New York Times report about the research study, Dr. Michael J. Sateia said "It is a striking finding that by no means can be discounted."



Dr. Sateia is a professor of psychiatry and sleep medicine at Dartmouth College's school of medicine, and was not involved in the research. The New York Times article can be found here: <http://well.blogs.nytimes.com/2012/12/03/insomnia-is-linked-to-trouble-breathing>.

The study appears in the December, 2012 issue of the journal *SLEEP* and is retrievable at: <http://dx.doi.org/10.5665/sleep.2244/>. This issue will also feature an editorial about the project, "Is Insomnia a Breathing Disorder?", written by two leading sleep researchers and is retrievable at: <http://dx.doi.org/10.5665/sleep.2222>.

Dr. Krakow is medical director of the Sleep and Human Health Institute, a non-profit sleep research institute specializing in the areas of sleep and mental health. The study was approved by Presbyterian Healthcare Services Institutional Review Board, Albuquerque, New Mexico.

Sleep and Human Health Institute
www.shhi.org

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- Overweight and obesity may play a role, but recent studies show an association between the two conditions that is independent of overweight/obesity.
- OSA may have effects on glycemic control in people with type 2 diabetes.
- OSA is associated with a range of cardiovascular complications such as hypertension, stroke and heart failure.
- The IDF calls on health decision makers to encourage further research into the links between

these two conditions and urges healthcare professionals to adopt new clinical practices to ensure that a person with one condition is considered for the other. The IDF statement includes recommendations for screening, treatment and further research.

Resources:

- *IDF Consensus Statement on Sleep Apnoea and Type 2 Diabetes (published in Diabetes Research and Clinical Practice)*
- *IDF booklet on sleep apnoea and type 2 diabetes/Version Française*
- *Fact sheets:*
 - *About the IDF Consensus Statement*
 - *Type 2 diabetes and sleep apnoea*

References:

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- [ii] West SD, Nicoll DJ, Stradling JR: *Prevalence of obstructive sleep apnea in men with type 2 diabetes. Thorax* 61(11): 945-950, 2006
- [iii] Resnick HE, Redline S, Shahar E, Gilpin A, Newman A, Walter R, Ewy GA, Howard BV, Punjabi NM: *Diabetes and sleep disturbances: findings from the Sleep Heart Health Study. Diabetes Care* 26(3): 702-709, 2003

Sleep Apnea Study Uncovers More Hidden Dangers For Women

There's more bad news for women with sleep apnea.

A new study from the UCLA School of Nursing shows that the body's autonomic responses - the controls that impact such functions as blood pressure, heart rate and sweating - are weaker in people with obstructive sleep apnea but are even more diminished in women.

Women with obstructive sleep apnea may appear to be healthy - having, for instance, normal resting blood pressure - and their symptoms also tend to be subtler, which often means their sleep problem is missed and they get diagnosed with other conditions.

"We now know that sleep apnea is a precursor to bigger health issues," said Paul Macey, lead researcher on the study, which appears Oct. 23 in the peer-reviewed journal PLOS ONE. "And for women in particular, the results could be deadly."

Obstructive sleep apnea is a serious disorder that occurs when a person's breathing is repeatedly interrupted during sleep, sometimes hundreds of times. Each time, the oxygen level in the blood drops, eventually resulting in damage to many cells in the body. The condition affects more than 20 million adults in the U.S. and is associated with a number of serious health consequences and early death. Women are much less likely to be diagnosed than men.

For the study, men and women - both with and without obstructive sleep apnea - had their heart-rate responses measured during three physical tasks:

- The Valsalva maneuver: Subjects breathe out hard while the mouth is closed.
- A hand-grip challenge: Subjects squeeze hard with their hand.
- A cold pressor challenge: A subject's right foot is put in almost-freezing cold water for a minute.

In all three tests, changes to the normal heart rate were lower and delayed in patients with obstructive sleep apnea, compared with healthy controls. The researchers found that the difference was even more pronounced in women.

"The heart-rate results for these tests show that the impact of sleep apnea, while bad in men, is more severe in women," Macey said. "This may mean that women are more likely to develop symptoms of heart disease, as well as other consequences of poor adaptation to daily physical tasks. Early detection and treatment may be needed to protect against damage to the brain and other organs."

The next step in the research is to see if the autonomic responses improve with treatments such as continuous positive airway pressure (CPAP), the usual sleep apnea therapy, in which a machine is used to help an individual breathe easier during sleep. Researchers also intend to investigate the affect of other treatments.

The study was funded by the National Institutes of Health and the National Institute of Nursing Research. Other authors of the study included Rajesh Kumar, Mary Woo, Frisca Yan-Go and Ronald Harper, all of UCLA.

UCLA School of Nursing
www.nursing.ucla.edu



April 18th Sleep Apnea Awareness Day

April 18th is an important date in the history of treatment of obstructive sleep apnea. On this day in 1981, Professional Colin Sullivan published the results of a small study (five patients) in the British Medical Journal The Lancet entitled - "Reversal of Obstructive Sleep Apnoea by Continuous Positive Airway Pressure Applied Through the Nares".

The use of CPAP revolutionized the treatment of a condition, providing a non-invasive means to eliminate the severe oxygen destatutions and resulting sleep fragmentation that occurs when someone as has sleep apnea. This treatment improves the quality of life by providing a restful night's sleep and there is evidence that it has a positive impact on other conditions like hypertension, diabetes, and depression.

Choosing April 18th as Sleep Apnea Awareness Day we also honor Dr. Colin E. Sullivan, the inventor of CPAP and lead author on the above reference study. His discovery has had a significant positive impact on the lives of many, many people.

Sleep Apnea Increases Risk of Sudden Cardiac Death

A moderate case of obstructive sleep apnea can significantly increase a person's risk for sudden cardiac death, an often fatal condition where the heart stops beating and must be immediately treated with CPR or an automated external defibrillator. Referencing the largest study of its kind published in the *Journal of the American College of Cardiology*. WASHINGTON (June 11, 2013).

Sleep apnea is diagnosed when a person stops breathing for 10 seconds or longer at least five times an hour during sleep. Symptoms can include loud snoring, choking or gasping during sleep, and morning drowsiness. According to the National Heart, Lung and Blood Institute, there are more than 12 million American adults that suffer from obstructive sleep apnea and many of them are undiagnosed.

"The prevalence of obstructive sleep apnea in Western populations is high and will likely only continue to grow given the obesity epidemic and direct relationship between obesity and sleep apnea," said Apoor Gami, MD, MSc, FACC, lead author of the study and a cardiologist at Midwest Heart Specialists - Advocate Medical Group in Elmhurst, Ill.

It has been widely reported that sleep apnea can lead to a number of heart conditions, including high blood pressure, atrial fibrillation and heart attacks. Researchers in this study examined the relationship between sleep apnea and sudden cardiac death, building off of their prior study that found people with sleep apnea more frequently died suddenly from cardiac causes during the hours of 10 p.m. to 6 a.m., which is the least likely time for sudden cardiac death in the general population.

The 10,701 subjects were followed for an average of 5.3 years for incidents

of resuscitated or fatal sudden cardiac death. In that time, 142 patients experienced sudden cardiac death, with the most common predictors being a patient at 60 years, having 20 apnea episodes an hour and having a lowest oxygen saturation level of below 78 percent.

Low oxygen saturation occurs when a sleep apnea patient is sleeping and the air does not flow into the lungs, as a result the patient's blood oxygen levels drop. The study showed that a drop to below 78 percent increases that patients risk of sudden cardiac death by 80 percent.

The study clarifies that sleep apnea patients' risk of sudden cardiac death does not simply shift from daytime hours to nighttime hours but that their overall risk of sudden cardiac death is higher than people without sleep apnea.

"Treating sleep apnea in one person can improve the quality of life of both bed partners and may have the added benefit of helping to prevent cardiovascular disease," said Virend K. Somers, MD, PhD, FACC, senior author on the study and a professor of medicine at Mayo Clinic College of Medicine in Rochester, Minn. "If the spouse sees the bed partner stop breathing repeatedly during sleep, this is an important clue that he or she probably has sleep apnea."

For more information on sleep apnea or sudden cardiac death, visit www.cardiosmart.org.

