

## Key Studies – Relating Crash Risk with Fatigue & Sleep Dysfunction

We are sometimes asked if there are direct links between untreated OSA and crashes. The answer is yes. There are several studies that can be cited. Here's a sample of 10 studies to give you an idea of the overwhelming conclusion that crash frequency, injuries, lost time at work, turnover, healthcare costs, etc. are **ALL** adversely affected by untreated sleep apnea.

- Advanced Brain Monitoring. Sleep Diagnosis and Therapy. Vol 2, No.2. *Assessment of Obstructive Sleep Apnea Risk and Severity in Truck Drivers: Commentary on the Legal Implications for Ignoring a National Safety Concern*. April 2007. Carper and Levendowski. **"Accident avoidance or reduction can occur through diagnosis and treatment of OSA, which can be done in a cost effective way that reduces overall costs to the company, including liability for accidents and the costs of employee healthcare."**  
[https://www.researchgate.net/publication/237466613\\_Assessment\\_of\\_Obstructive\\_Sleep\\_Apnea\\_Risk\\_and\\_Severity\\_in\\_Truck\\_Drivers\\_Commentary\\_on\\_the\\_Legal\\_Implications\\_for\\_Ignoring\\_a\\_National\\_Safety\\_Concern](https://www.researchgate.net/publication/237466613_Assessment_of_Obstructive_Sleep_Apnea_Risk_and_Severity_in_Truck_Drivers_Commentary_on_the_Legal_Implications_for_Ignoring_a_National_Safety_Concern)
- Harvard Medical School – *The Price of Fatigue: The surprising economic costs of unmanaged sleep apnea*. McKinsey & Company. December 2010.  
<https://sleep.med.harvard.edu/what-we-do/public-policy-research>
- Journal of Clinical Sleep Medicine. *Systematic Review of Motor Vehicle Crash Risk in Persons with Sleep Apnea*. Ellen, Marshall, Palayew. 2006. [A review of multiple studies on crash risk and OSA] **"...using state or insurance driving records found a statistically significant association between sleep apnea and crashes...[in another study] cases were drivers who presented to the emergency room because of a motor vehicle crash and were compared with age and sex matched controls who presented to the emergency room for other reasons. The results showed that persons involved in crashes were 7.2 times more likely to have sleep apnea..."**  
<http://www.aasmnet.org/jcsm/Articles/020214.pdf>
- Journal of Clinical Sleep Medicine. *Commercial Motor Vehicle Driver Obstructive Sleep Apnea Screening and Treatment in the United States: An Update and Recommendation Overview*. Colvin and Collop. 2015. **"When considering clinical assessment of OSA risk based on criteria that do not rely primarily on the CMV driver report, we focus on the physical examination and measurements obtained as part of this assessment"**  
<http://www.aasmnet.org/jcsm/ViewAbstract.aspx?pid=30405>
- NCBI. US National Library of Medicine National Institutes of Health. *Obesity is associated with the future risk of heavy truck crashes among newly recruited commercial drivers*. Anderson. 2012.  
<https://www.ncbi.nlm.nih.gov/pubmed/23036416>
- NCBI. US National Library of Medicine National Institutes of Health. *The joint contribution of insomnia and obstructive sleep apnea on sickness absence*. Sivertsen. 2013. **"Accumulated evidence has demonstrated that sleep problems are associated with subsequent sick leave and work disability...OSA has been shown to almost double the risk for subsequent sick leave and work disability."**  
<http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2869.2012.01055.x/full>
- SLEEP. Vol. 35, No. 4, 2012. *Assessing Sleepiness and Sleep Disorders in Truck Drivers*. Sharwood. **"...CMV drivers have an elevated risk of OSA [lifestyle challenges]...OSA increases the crash risk of motor vehicle drivers by 2 to 7 fold."**  
<http://www.journalsleep.org/ViewAbstract.aspx?pid=28461>
- SLEEP. Vol. 27, No. 3, 2004. *Reducing Motor-Vehicle Collisions, Costs and Fatalities*. Sassani. 2004. (6 pages). **"Drivers suffering from obstructive sleep apnea...have an increased risk for being involved in motor-vehicle collisions."**  
<http://www.files.e-shops.co.il/multisites/sites/3305/articles/Reducing%20Motor-Vehicle%20Collisions,%20Costs,%20and%20Fatalities%20by%20Treating%20Obstructive.pdf>
- Transportation Research Board – *Research on the Health and Wellness of Commercial Truck and Bus Drivers*. Krueger, Rapporteur. November 2010 (145 pages)  
<http://atri-online.org/wp-content/uploads/2012/09/INTLH1.pdf>
- Virginia Tech. Virginia Tech Transportation Institute. *Truckers with sleep apnea who do not follow treatment have greater crash risk*. March 2016 "Truck drivers who have obstructive sleep apnea and who do not adhere to a mandated treatment program have a 5x increase in the risk of a severe crash...Drivers who did not follow [treatment] were retained only 1/3 as long as drivers who did adhere...as long as specific rigorous screening standards for obstructive sleep apnea are not in place, these drivers, if they remain untreated, are likely to remain a risk on the roadways." **Key finding: "What we found is that, if we look at 1,000 truck drivers each working for a year, the drivers with obstructive sleep apnea who refuse treatment would have 70 preventable serious truck crashes, compared to 14 crashes experienced by both a control group and by drivers with sleep apnea who adhered to treatment."** <https://vtnews.vt.edu/articles/2016/03/vtti-truckerssleep.html>



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