# DECADES OF COMPELLING AND CONVINCING RESEARCH HAS SHOWN THE DANGERS OF FATIGUED COMMERCIAL DRIVERS

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Operator fatigue and sleep deprivation are serious, worldwide safety problems in all modes of transportation. Operator fatigue has been identified by several major national governments and the European Union as a serious contributor to air, maritime, railroad, motor carrier and passenger vehicle crashes and other incidents leading to losses of lives, the infliction of severe injuries, and extensive property damage. For example, the report of the Parliament of the Commonwealth of Australia (October 2000) concluded that fatigue is the "core safety issue in the transport industry." Although the problem of fatigue pervades commercial transportation, the drivers of commercial motor vehicles (large trucks and buses) are the leading commercial transportation source of fatigued, sleep-deprived operators. Drivers of large trucks and buses are allowed to operate very long shifts without adequate sleep and to rotate their time on duty. This forces commercial vehicle drivers to sleep on a piecemeal basis and often to drive through the night, the most dangerous time to operate a large truck or bus. Under the current hours of service (HOS) rule, 65% of drivers have reported being drowsy while driving and 48% admit to having fallen asleep while driving in the previous year. The result is an unacceptable number of preventable crashes that is recognized as a major reason for highway fatalities.

## COMMERCIAL DRIVER FATIGUE FACTS

- Current U.S. federal HOS regulations allow truck and bus drivers to drive up to 11 hours in a 21-hour period and up to 77 hours in 7 days or 88 hours in 8 days with only a minimum of 10 hours off-duty for sleep after each 11 hours of driving. HOS Final Rule, 73 FR 69567 (Nov. 19, 2008).
- These unsafe freight and passenger transportation practices of long duty and driving hours, shift rotation, and inadequate sleep have been recognized by research conducted by government agencies such as the National Transportation Safety Board (NTSB), the National Highway Traffic Safety Administration (NHTSA), and the Federal Highway Administration (FHWA) and the Federal Motor Carrier Safety Administration (FMCSA) as fatiguing and dangerous. (FMCSA, 2011, 2007; NTSB, 1995; NHTSA, 1999, 1998, 1994; U.S. Office of Technology Assessment, 1991; FHWA 1990, 1988, 1987, 1980).
- Numerous studies performed by independent researchers worldwide have shown that long hours per shift and lengthy weekly work periods promote fatigue among workers, especially commercial vehicle operators. (Blanco & Hanowski, 2011; Jovanis, 2011; Sandos 2010; Campbell, 2005; Jovanis, 2005; Abrams 1997; Akerstedt, 1997; Folkard, 1997, 1995; Smiley and Heslegrave, 1997; Sanquist, 1996; Brown, 1994; Frith, 1994; Kurumatani, 1994; Rosa, 1993, 1991; Kaneko and Jovanis 1992, 1990; Dinges and Kribbs, 1991; Rosa and Colligan, 1989; Haworth, Triggs, and Grey, 1988; Hamelin, 1987; Jones and Stein, 1987; Rosa *et al.*, 1985; Fuller, 1983; Linklater, 1980; Knauth 1979; Harris and Miller, 1978, 1972).
- Commercial drivers frequently exceed even the allotted hours permitted by federal regulation for on-duty driving time, and regularly falsify paper logbooks to conceal actual driving hours. Some drivers even accumulate up to 100 driving hours per week. (McCartt (Insurance Institute for Highway Safety), 2005, 2003; Belzer, 1999; UMTRI, 1997-1999; Braver, *et al.*, 1992; van Ouwerkerk (European Economic Community), 1988).
- Research conducted for FMCSA confirms that crash risk increases along with the driving time for at least the 7$^{th}$ through the 11$^{th}$ consecutive hours of driving. (Jovanis, 2011).

- Another recent FMCSA contracted study confirms that driving towards the end of the 14-hour shift, that is, more than 10 hours after reporting for duty (*i.e.*, during hours 10 through 14) increases crash risk reflected in safety-critical events. (Blanco, Hanowski, *et al.*, 2011).
- The prevalence of fatigue and sleep deprivation leading to truck and bus crashes is severely underreported and is usually not detectable by police and other crash investigators. (Australian Federal Office of Road Safety, 1988, 2000; AAA Foundation for Traffic Safety, 1999; NTSB, 1995; NHTSA, 1994).
- Fatigue and sleep deprivation, with their associated dangers of falling asleep at the wheel, inattention, and loss of alertness, are judged by several researchers and agencies to be responsible for 15 percent to as much as 50 percent of heavy truck crashes. (FMCSA, 2000; Parliament of the Commonwealth of Australia, 2000; NTSB, 1995; Australian Federal Office of Road Safety, 1988; NHTSA, 1994).
- Numerous researchers have stressed that long consecutive driving hours, long duty weeks, and inadequate and interrupted sleep are directly related to increased crash risks. In fact, many researchers, as well as the FMCSA, have shown that the risk of having a crash rapidly increases after 8$^{th}$ or 9$^{th}$ hour of driving. (FMCSA, 2000; Saccamano and Yu, 1996, 1995; Folkard, 1995; Lin, Jovanis, and Yang, 1994; Frith, 1994; Rosa and Bonnet 1993).
- Numerous researchers have also shown that long working hours per day and per week are related to adverse health effects, including obesity, reduced cardio-vascular capacity, some cancers, endocrine and hormonal changes, and musculo-skeletal disorders. (National Academy of Sciences Transportation Research Board, 2005; National Institute of Occupational Safety and Health (NIOSH), 2004).
- Although it is clear that long consecutive driving hours and longer weekly driving hours increase commercial driver fatigue and loss of alertness, while raising the risk of crashes, the current HOS rule increased the number of consecutive and weekly driving hours in direct contradiction to previous U.S. DOT agency statements about the dangers of increasing work hours. (FMCSA, 2000; FHWA, 1990, 1981).
- Although several research studies have consistently shown that short rest periods do not allow worker and driver recovery from long, fatiguing shift work and driving, the current HOS rule only allows drivers a minimum of 34 hours off-duty for sleep and recuperation after having driven as much as 60 hours in less than 5 days or 70 hours in about 5 days before staring a new tour of duty. (FMCSA, 2003; Belenky, 2000; Balkin, 2000; Smiley and Heslegrave, 1997; Wylie, *et al.*, 1997; Sanquist, *et al.*, 1996; Kecklund and Akerstedt, 1995; Kurumatani, 1994).
- Although numerous shiftwork and driver studies have shown that fatigue and sleep deprivation are especially severe during late night hours and that late-night driving dramatically increases the risk of injuries and crashes, the FMCSA did not restrict nighttime commercial driving in the 2003 and 2005 final rules and will allow commercial drivers to accumulate all of their driving time during hours of darkness. (FMCSA, 2000; Folkard, 1997; Rosekind, n.d.; Fuller, 1983; EEC, 1985; Akerstedt, 1997; Hamelin, 1987; Wylie, 1997; Smiley and Heslegrave, 1997).