The Fifth International Symposium on Naturalistic Driving Research, August 29—30, 2016, Blacksburg, Virginia, U.S.A.

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Trucker sleep patterns influence driving performance

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Background

3,500
An estimated 3,500 fatal crashes involving large trucks every year

4,000
About 4,000 people died from large truck crashes every year

350-700
Of these fatal crashes, 350-700 were caused by fatigued truckers

- Commercial truck drivers are essential to transporting goods long distances to meet consumer demands.
- These demands put pressure on truckers to deliver goods on time and at risk for insufficient sleep and/or irregular sleep patterns.

Methods

- Sleep patterns of 96 commercial truckers during their non-work periods were examined using data from the Naturalistic Truck Driving Study.
- Four quantitative measures were used to describe sleep patterns: sleep starting and ending points in a non-work period, sleep duration, and the amount of sleep as a percentage of the non-work period.
- The influence of the sleep patterns on subsequent truck driving performance were evaluated using negative binomial regression.
- Driving performance was measured by safety-critical events (SCEs) which included:
  - Crashes
  - Near-crashes
  - Crash-relevant conflicts
  - Unintentional lane deviations

Results

- Four distinct sleep patterns were identified.
- Pattern 2 had the highest SCE rate among the four sleep patterns.

Sleep pattern	Average sleep	% of non-work period	Average sleep start point (%)	% with any sleep in 1-5 am	SCEs per 100 h driven
1	6.7 h	53	41	86	16.4
2	5.8 h	44	10	35	21.8
3	8.1 h	68	19	83	13.4*
4	9.3 h	93	5	89	13.7*

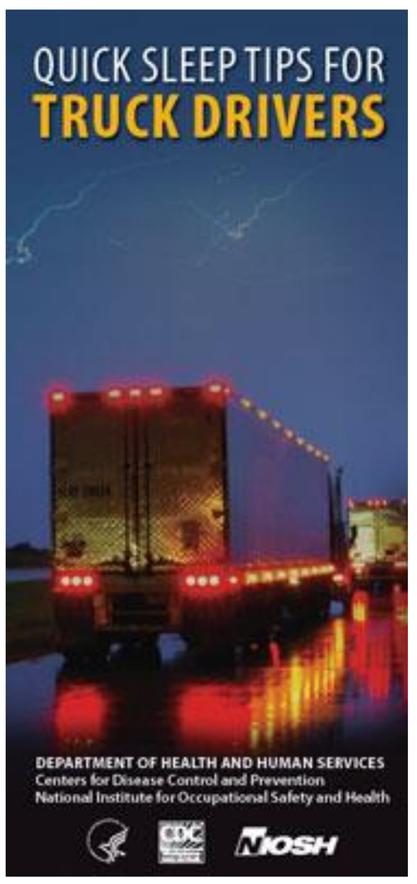
* SCE rate significantly different from Pattern 2, p <.05.

- Drivers who had significantly higher SCE rate than their counterparts include:
  - Male drivers
  - Drivers with fewer years of commercial vehicle driving experience
  - Drivers with higher body mass indexes

Practical Applications

Truck drivers and truck companies can:

- Sleep 7—9 hours a day
- Schedule sleep in the time period between 1–5 a.m.
- Arrange sleep late in the non-work period if possible.
- Maintain a healthy weight.
- More sleep tips for truckers are available on the NIOSH website, Quick Sleep Tips for Truck Drivers (www.cdc.gov/niosh/docs/2014-150/).



For more information about the study please see
Chen GX, Fang YJ, Guo F, Hanowski RJ. The influence of daily sleep patterns of commercial truck drivers on driving performance. *Accident Analysis and Prevention* 2016; 91: 55–63.

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