

Evaluation of Interventions Designed to Improve Truck Driver Comfort, Sleep, and Health

Ryan Olson^{1,2}, Steven A. Shea¹, Miguel Marino¹, Jarred Rimby¹, Kelsey Womak¹, Rachel Springer¹, Courtney Donovan¹, Sean P.M. Rice¹, Fangfang Wang³ and Peter Johnson³

¹Oregon Health & Science University, Portland, OR, USA ²Portland State University, Portland, OR, USA,

³University of Washington, Seattle, WA, USA

ABSTRACT

The work schedules and sleep environments of long-haul team truck drivers increase the risk of having inadequate sleep which may adversely affect driver health and contribute to vehicle-related crashes. The purpose of this study was to determine whether an intervention that involves replacing a regular, industry-standard innerspring mattress with an interlocking foam therapeutic mattress would improve truck drivers' sleep and reduce adverse health consequences associated with poor sleep. Using a repeated measures design, for one-month periods, 8 truck driving teams (n=16 subjects) evaluated their existing, industry-standard, regular innerspring mattress, a new regular innerspring mattress and a new interlocking foam therapeutic mattress. Sleep quality was measured using short daily sleep questionnaires, 7-point Likert scales were used to rate mattress comfort and satisfaction, a Nordic questionnaire to assess body pain and whole-body vibration measurements were collected from each truck team while sleeping in each type of mattress. Effect sizes, using Cohen's-d were used to measure changes in the study outcomes. Relative to their existing, pre-study, innerspring mattresses, truck drivers' self-reported sleep and fatigue improved with the new regular mattress (small to medium effect sizes) and improved even further with the interlocking foam therapeutic mattress (small, medium and large effect sizes). All truck driving teams reported substantially higher comfort ratings with the new interlocking foam therapeutic mattress. There were no differences in the vibration transmitted through the mattress occupants when sleeping but there were some differences in the vibration frequency transmitted through the mattresses. An unexpected outcome was that the truck tires had the greatest influence on the vibrations in the truck cab. These results indicated that both the new regular mattress and the new interlocking foam therapeutic mattress improved team truck drivers' sleep, health, and well-being. The outcome improvements were slightly greater with the interlocking foam therapeutic mattress and all truck driving teams had a substantially greater preference for this mattress. An unexpected factor creating the largest difference in vibration transmission through the mattresses was the type of tires on the trucks.

KEYWORDS

Therapeutic Mattress, Sleep Hygiene, Whole Body Vibration

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References

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