Engineering and Behavioral Controls to Improve Sleep, Fatigue, and Well-being Among Team Truck Drivers

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Total Worker Health® and the Hierarchy of Controls

1. Eliminate
   - Eliminate working conditions that threaten safety, health, and well-being

2. Substitute
   - Substitute health-enhancing policies, programs, and practices

3. Redesign
   - Redesign the work environment for safety, health, and well-being

4. Educate
   - Educate for safety and health

5. Encourage
   - Encourage personal change
Enhanced mattress system. Memory foam matrix mattress with faded reveal of the underlying Latto-flex wing suspension system. The system is wrapped and integrated with a custom cloth mattress cover.
Behavioral Sleep Program

**SHIFT** adapted as **“Fit-4-Sleep”**

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<tr>
<th>Original SHIFT Intervention</th>
<th>Fit-4-Sleep</th>
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<tr>
<td>6-month weight loss competition for commercial truck drivers</td>
<td>3-mo. competition to increase walking &amp; improve sleep</td>
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**Competition**
Mobile friendly website provides individual, group, and inter-group feedback.

**Logging**
Drivers select behavioral goals and log their frequency along with body weight each week.

**Training**
Orientation + 4 topics
1. SHIFT 10%
2. Eating
3. Exercise
4. Sleep

**Coaching**
Up to four calls (20-40 min) with an expert motivational interviewer.

**Competition**
Step counting competition plus medals for tracking sleep hygiene practices. Feedback (all levels) with enhanced gamification.

**Logging**
Drivers log steps, sleep, and selected sleep hygiene goals (drivers choose).

**Training**
Sleep-related and exercise content adapted and expanded. Integrated with logging as mini-units (3-5 min). New family training supporting sleep at home.

**Coaching**
Brief bi-weekly calls (15 min) requiring minimal staff training. Protocols adapted from effective programs.
PILOT (10 teams)

- 5 teams standard vs. enhanced mattress
- 5 teams enhanced mattress vs. standard, then enhanced seat & sleep-health intervention

RCT (40 teams)

- Enhanced cab, then enhanced cab + sleep-health intervention
Preliminary Pilot Results (n=8):
Demographics

- Age $M=50.8$ yrs ($SD=10.8$)
- Male=7, Female=1
- Team driving tenure $M=3.5$ yrs ($SD=1.9$)
- Weekly work hours $M=53.1$ ($SD=19.8$)
Unpublished preliminary data redacted

Please contact Ryan Olson for updates on availability of data: olsonry@ohsu.edu

X-Axis Power Spectral Density for Mattress

Y-Axis Power Spectral Density for Mattress

Z-Axis Power Spectral Density for Mattress

Single Subject
Preliminary Pilot Results (n=8): Survey and Mattress Preferences

Unpublished preliminary data redacted

Please contact Ryan Olson for updates on availability of data:olsonry@ohsu.edu
Actigraphic Data Processing

Unpublished preliminary data redacted

Please contact Ryan Olson for updates on availability of data: olsonry@ohsu.edu
Take Home Points
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9+ teams

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