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Dr. Mollicone is a nationally recognized expert in fatigue in transportation. He has been a leader in the development of the field of fatigue risk management. Dr. Mollicone has acted as Principal Investigator on 2 congressionally mandated transportation field studies related to fatigue and safety. He has contributed to the development of international standards related to the use of biomathematical fatigue models. He has also conducted research on fatigue, neurobehavioral performance, and safety funded by NASA, the Department of Defense, the Department of Homeland Security, and the National Institute of Health. Dr. Mollicone holds degrees in Engineering Physics and Biomedical Engineering.



Fatigue in trucking: The science of fatigue, operational risk, and mitigation strategies.

Unmanaged fatigue risk can jeopardize the safety of drivers and others who share the road, be very costly, and negatively impact company reputation. Here are some of the key aspects to consider and tips to lower fatigue risk.

Our ability to be alert on the job is governed by two well understood biological processes.

The first is our circadian rhythm—this rhythm, which is produced by a group of cells in our brain, acts as our biological clock. It signals our body to feel more alert during the day and sleepy at night. The second process is our sleep battery which needs to be recharged every day. On average, adults need 7-8 hours to recharge this battery.

Tip: Make sleep a priority. Track your daily sleep and challenge yourself to get more. After a week of getting more rest you'll likely feel better than prior patterns.

Another biological process to consider is sleep inertia.

This is what makes us feel groggy when we first wake up. Sleep inertia is usually much stronger when we wake up in the middle of the night during our window of circadian low (between 1-5am).

Tip: If napping during your break, give yourself some time to allow the sleep inertia to dissipate. Coffee can help get rid of the groggy feeling.

If we go day after day without getting adequate sleep our battery never fully recharges.

Instead, we accumulate a sleep debt. Each day we do not get enough sleep we add to our sleep debt. It takes extra sleep over multiple days to recover and pay off a sleep debt.

Tip: Pay off sleep debt by getting 8 to 9+ hours of sleep on days off. Try taking advantage of sleep/nap opportunities while off duty, and ask your family to help you make getting enough sleep a priority.

Irregular work schedules can increase fatigue risk.

Driving schedules can result in extended shifts, night work, disrupted daytime sleep, and irregular or unpredictable sleep opportunities, but our bodies crave consistency. Going to bed and waking at the same time each day can make you more likely to get a sufficient amount of sleep on a regular basis, and to avoid sleep deprivation and sleep debt.

Tip: It's important to establish a sleep schedule that is sustainable and realistic for your life, with its particular demands. A good schedule not only tends to increase the amount of sleep you get each night, it can also improve the quality of your sleep.

Fatigue affects our ability to be alert and can cause lapses in attention or microsleeps.

A microsleep is when the brain actually goes to sleep for a half of a second, or longer. A half of a second is a dangerous amount of time on the road. At 60 mph the truck will travel 44 feet and with a small 4 degree angle of drift be completely out of lane and off the road in 1 second. Microsleeps occur without warning, and you may not even realize you experienced one.

Tip: If you feel that you could be at risk from microsleeps while driving, try to take a break, grab a cup of coffee, and take a 20-30 minute power nap. But obviously, nothing can beat a good night's sleep when it comes to preventing microsleeps.

Why is the task of driving so sensitive to fatigue?

The NTSB (National Transportation Safety Board) and FMCSA (Federal Motor Carrier Safety Administration) indicate that fatigue is among the top contributing factors to truck crashes. Driving is a task that is particularly vulnerable to fatigue. On the road things can happen suddenly, requiring a quick reaction from the driver. Drivers must pay attention to the road and surrounding traffic continuously while driving. Fatigue impairs our ability to reliably sustain attention. This can lead to a driver not reacting quickly enough and causing a crash.

Tip: If you are feeling drowsy pull over and take a 20-30 minute power nap. Make sure to give yourself some time to fully wake up before getting back on the road. A power nap may provide the alertness boost you need to finish your day safely.

Driving home when you're "off duty" may be the riskiest part of your day.

Fatigue risk doesn't go off duty. Surveys indicate that as many as 80% of those working night shifts had microsleep episodes when driving home after their shift.

Tip: If you have a long commute home after a long duty day or overnight duty shift consider a 20-30 minute power nap in your car before driving home. A coffee will help too but while coffee will give you an alertness boost it may interfere with your sleep if you intend on sleeping when you get home.

Our products and services are designed to make fatigue risk management decisions easy.

Fatigue Meter shows you exactly how operational factors such as long duty hours, night driving, and restricted sleep opportunities contribute to elevated fatigue risk in your operation.

Using our data-driven and scientifically validated tool you can implement mitigation strategies such as driver reassignment, nap breaks, and schedule changes with confidence.



Ready to start managing fatigue risk?

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