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Truck & Traffic Safety Research, Training, & Consulting

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HIGHLIGHTS

Qualifications:

- More than forty years of achievement in traffic safety research, analysis, technology, and training, with emphasis in motor carrier safety.
- Author of the only comprehensive textbook on large truck safety, *Safety for the Long Haul; Large Truck Crash Risk, Causation, and Prevention*.
- Awarded the International Road Transport Union Order of Merit in recognition of *Safety for the Long Haul*. First American scientist to receive this award, the IRU's highest.
- Has directly managed or overseen more than 150 traffic safety research programs.
- More than 325 technical reports, publications, and conference presentations.
- Expert witness in litigation involving motor vehicle crashes, work fleet safety management, technology, high-risk drivers, and driver fatigue. Evidence reviews, preparation of deposition questions, written opinions, and/or testimony on 14 crashes and one patent case.
- Co-founder of *Motor Carrier Safety Associates* consortium of industry experts.
- Author of North American Fatigue Management Program (NAFMP) fatigue management training for drivers, families, and fleet trainers.
- Subject Matter Expert for a U.S. DOT report summarizing scientific knowledge on driver drowsiness and asleep-at-the-wheel crashes.
- Career includes:
 - Twelve years as an independent researcher, consultant, and trainer.
 - Seven years with Virginia Tech Transportation Institute (VTTI)
 - Six years with the Federal Motor Carrier Safety Administration (FMCSA)
 - Six years with the National Highway Traffic Safety Administration (NHTSA)
 - 11 years as a researcher and training developer at Allen Corporation of America
- Founding Chair, Transportation Research Board Committee on Truck & Bus Safety.
- Chair, TRB Safety & System User Group (coordinating 19 road safety committees).
- Coordinator & editor, ANB70 Circular *The Domain of Truck & Bus Safety Research*.

Some areas of expertise:

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| • Driver human factors | • Crash avoidance technologies |
| • Driver fatigue/Hours-of-Service | • On-board safety monitoring |
| • Driver distraction/inattention | • Crash countermeasure assessment |
| • Driver safety training | • Carrier safety management |
| • Crash data analysis | • Behavior-based safety |
| • Crash risk & causation | • Research program management |
| • Naturalistic driving studies | • Instructional system development. |

EDUCATION

Ph.D., Psychological Psychology, University of Maryland, College Park, Maryland, 1975
B.A., Zoology, George Washington University, Washington, DC, 1968

EXPERIENCE

Dr. Ron Knipling is an expert in truck and bus safety research, management, and training. He has written the only comprehensive textbook on large truck safety, entitled *Safety for the Long Haul: Large Truck Crash Risk, Causation, & Prevention*. This full-scope, 13-chapter book addresses the large truck crash problem, risk, causation, driver fatigue, car-truck interaction, vehicle technology, roadway factors, carrier operations and management, and enforcement. The book is published by the American Trucking Association (ATA) and available at www.ATABusinessSolutions.com.

Through his consultancy, Dr. Knipling has performed more than 50 projects, including:

- In support of the North American Fatigue Management Program (NAFMP), wrote and developed interactive training for drivers, trainers, driver families, and shippers/receivers.
- Condensed the NAFMP program into a one-day manager seminar and worked with Redknot Transnational to provide this training in Monterrey and Mexico City, Mexico.
- Reviewed and critiqued commercial driver fatigue research methodologies for an FMCSA-funded National Academy of Sciences expert panel.
- Assisted the McLane Company of Temple TX in successful petitions to the U.S. DOT seeking relief from Hours-of-Service (HOS) mandatory 30-minute work breaks for team drivers whose jobs entail physically active deliveries to grocery outlets.
- Subject Matter Expert (SME) for NHTSA in researching and developing publication to summarize the “State of Knowledge” about driver fatigue.
- Consulting SME for an initiative by the Rebel Sleep Institute of Alberta Canada to develop and deliver sleep and fatigue awareness training to organizational clients.
- Performed two studies to improve rest parking for large trucks and other fleet vehicles traveling on Interstates and in Interstate corridors.
- Assisted Lytx™ in its assessment and development of DriveCam® crash prevention programs for fleets. Surveyed drivers regarding their attitudes and acceptance of onboard video recording. Recommended vendor and carrier practices to increase driver acceptance. Analyzed research on the number and nature of potential target crashes.
- Researched and wrote TRB truck and bus synthesis reports on:
 - Fundamental principles of fleet safety management
 - Individual differences and high-risk commercial drivers
 - Safety benefits of motor carrier efficiencies; e.g., journey management
 - Driver selection tests and measurements
 - Safety management in small motor carriers.
- Supported the International Road Transport Union (IRU) in the design and development of advanced safety training for experienced truck and bus drivers.
- Wrote white paper on safety and health issues associated with driver fatigue for the International Labour Office (ILO), based in Geneva, Switzerland. The paper supported the October 2015 ILO Tripartite Sectoral Meeting in the Road Transport Sector addressing fatigue reduction at the company, national, and international levels.

- Provided customized webinars to Multi Group Logistics Inc. safety managers.
- Developed and presented in-person talks and online webinars on driver fatigue and crash risk reduction in conjunction with Zonar Systems, Inc.
- Analyzed causal and contributing factors in truck crashes in the Large Truck Crash Causation Study and the National Motor Vehicle Crash Causation Survey.
- Researched and wrote truck vehicle safety white paper for *Toward Zero Deaths: A National Strategy on Highway Safety* for U.S. DOT.
- Developed and delivered training on crash risk, causation, and prevention for Con-way Freight and J. B. Hunt safety managers.
- Conference addresses for the following organizations and events:
 - Commercial Vehicle Training Association
 - Minnesota Trucking Association Safety Council
 - NTSB “Decade of Progress” public forum
 - M-CASTL Annual Transportation Research & Education Conference
 - National Private Truck Council annual conference
 - American Trucking Associations (ATA) Management Conference & Exhibition
 - Missouri Truck Safety Strategic Advance conference
 - Michigan Traffic Safety Summit
 - Network of Employers for Traffic Safety (NETS) conference.

Dr. Knipling has supported 16 plaintiff lawsuits as an expert witness as well as one patent infringement defense case. He has served 11 different law firms. Services have included reviewing diverse case materials, writing expert opinions, preparing deposition questions, and in-person testimony. He has produced 13 written opinions and testified five times. Cases have involved driver fatigue, asleep-at-the-wheel, driver distraction (e.g., cell phone use), and fleet safety management. Clients have included truck drivers, car drivers, and other vehicle occupants. Fleet management topics addressed have focused on fatigue and distraction management, but have also covered a full spectrum of relevant safety management practices. Client feedback (e.g., on written opinions, testimony, and outcomes) has been consistently positive. Representative cases include:

- Schrom, Shaffer, & Botel, P.C., Media, PA. A rear-end impact caused disabling injuries to our client. Specific striking driver errors (e.g., distraction, speeding) could not be determined with certainty. Opinion focused on employer fleet safety management deficiencies; essentially they had no driving safety program.
- Thomas J. Henry Law Firm, San Antonio, TX. Occupants of stopped car were killed when rear-ended at highway speed by a truck driver who had for hours been talking on a hands-free cell phone. Case involves cognitive distraction and cell phone risks. Opinion debunked “Naturalistic Driving” claims that hands-free cell phones are not distracting.
- Wyatt Law Firm, San Antonio, TX. Oilfield mechanic was extremely fatigued or asleep after being called in by the company at midnight to fix a flat tire. He struck a large truck and was killed. He regularly worked 80 hours per week and had worked 35 of the previous 48 hours before being called back in. Law suit is on behalf of his widow.
- Scott Law Firm, Conroe, TX. In the early morning a work crew truck driver fell asleep and rear-ended, at speed, a motorist stopped at a traffic light. That motorist was seriously injured. Case focused on the company’s failure to proactively manage worker fatigue, train its workers, and mitigate the fatigue effects of an unexpected overnight work shift.
- Scott Law Firm, Conroe, TX. A bridge construction worker had a brief microsleep in traffic when returning in the mid-afternoon from his work shift performed in the hot sun. He rear-ended another vehicle, with a resulting injury to the backseat passenger.

- Wyatt Law Firm, San Antonio, TX. In an early morning crash, an oilfield worker fell asleep-at-the-wheel, ran a stop sign, and was struck at a right angle by a vehicle on the crossing highway. The young driver had been hired hastily by his company and had received insufficient training. His supervisor, riding with him, was asleep at the time.
- Walkup, Melodia, Kelly, & Schoenberger, San Francisco, CA. Pedestrian attending disabled vehicle struck and killed by tanker truck drifting off an Interstate lane onto the shoulder. Case centered around a short in-cab video showing tank truck driver loss of alertness and performance deterioration.
- Wyatt Law Firm, San Antonio, TX. Tractor-trailer driver seriously injured in opposite direction sideswipe when a drowsy, overworked oil rig driver drifted over the center line. Case centered on scenario evidence for fatigue and deleterious oil operations working hours and other labor conditions.
- Wyatt Law Firm, San Antonio, TX. Client injured in an early morning sideswipe after a grossly overworked all-night tow truck driver fell asleep and drifted laterally on the Interstate. Case centered on egregiously bad driver safety record and tow company incentives enticing marathon work hours for tow drivers.
- Fargason, Booth, St. Clair, Richards & Wilkins, Lubbock, TX. Tank truck driver seriously injured when his truck was struck by a large pickup truck engaged in oil field operations. Written opinion identified evidence for driver fatigue and excoriated defendant drilling company's operational and labor practices in regard to employee health, wellness, alertness, and safety.
- DeWitt Ross & Stevens, Madison, WI. Fatal six-vehicle pile-up initiated by a highway speed rear-end impact from a tractor-trailer. Case topics included driver fatigue as central cause, defendant driver Obstructive Sleep Apnea, Hours-of-Service violations, and company safety culture and practices.
- Wyatt Law Firm, San Antonio, TX. Three family members were killed at an Interstate work zone when asleep-at-the-wheel tractor-trailer driver rear-ended them at highway speed. Opinion addressed 14 different motor carrier safety management topics and organizational deficiencies. Most appalling were communication and responsibility gaps seen in prime contractor-multiple subcontractor operations.
- Rutter Mills L.L.P., Norfolk, VA. Tractor-trailer driver permanently disabled in complex multi-vehicle crash involving two at-fault vehicles, one a tractor-trailer with a fatigued driver and multiple serious Federal safety violations.
- Shearman & Sterling LLP, Washington DC. Provided expert consultation and deposition testimony in a winning defense of the Mercedes-Benz *Attention Assist* drowsy driver detection system. Case focused on the R&D history of drowsy driver detection devices.

Dr. Knipling spent seven years with the Virginia Tech Transportation Institute (VTTI) as Senior Research Scientist and Senior Transportation Fellow. Projects included:

- TRB truck and bus safety synthesis projects and reports on:
 - Effective motor carrier safety management.
 - Individual differences and high-risk commercial drivers.
 - Safety belt use among commercial drivers.
 - Behavior-based safety management in commercial driving
- Planning and coordination of the *2005 Truck & Bus Safety & Security Symposium*.
- Study validating the use of driving simulators for commercial driver training.
- NHTSA "100 Cars" Naturalistic Driving Study.
- FMCSA naturalistic driving study of truck driver errors and risk factors.
- NHTSA Commercial Driver Drowsy Driver Warning System Field Operational Test.
- NHTSA National Advanced Driving Simulator Alcohol Study.

Dr. Knipling was the founding Chair of the TRB Committee on Truck & Bus Safety Research (ANB70). In this role he coordinated the development of a TRB Circular entitled *The Domain of Truck & Bus Safety Research*. He also was Chair of the TRB Safety & Systems User Group, coordinating 19 TRB highway safety committees.

Dr. Knipling served for six years as Chief, Research Division, FMCSA, where he administered agency R&T and managed the driver human factors program. This included projects on driver fatigue, physical/medical qualifications, selection and training, non-commercial driver behavior, carrier compliance, and safety management. He also served for six years as Engineering Research Psychologist with NHTSA. There he assessed crash causal factors and technological countermeasures, managed driver fatigue programs, and led a landmark, multi-dimensional analysis of U.S. motor vehicle crashes.

Earlier, he was a Program Manager at Allen Corporation of America, where he led transportation-related research and training projects. He coordinated and served as lead developer for an NHTSA accident reconstruction training program. Dr. Knipling also has four years' experience as an Instructor with the University of Maryland.

SELECTED PUBLICATIONS (from more than 150 total)

Knipling, R.R. One Rear-End Crash Could Destroy Your Motor Transport or Service Fleet. The TASA Group. 2022. Available at: <https://www.tasanet.com/Knowledge-Center/Articles>.

Knipling, R.R., Jackson, S., and af Wählberg, A.E. H. W. Heinrich and the biggest fallacy in the history of road safety research. Presented to and published by the Canadian Association of Road Safety Professionals (CARSP) Conference. Sudbury, Ontario. July 19-22, 2022.

Toxcel Corporation. Driver Fatigue: Current State of Research Knowledge. NHTSA Contract No. DTNH2217D00040. In final review for publication in 2022. [Consultant and principal author of Chapter 4: Drowsy Driving Crashes: What the Data Tells Us.]

Knipling, R.R. A Universe of Crash Risk Factors Face Work Fleets. The TASA Group. 2022. Available at: <https://www.tasanet.com/Knowledge-Center/Articles>. Also available on safetyforthelonghaul.com.

Knipling, R.R. "What's your safety personality?" Blog essay available at safetyforthelonghaul.com and also at <https://www.tasanet.com/Knowledge-Center/Articles>.

Knipling, R.R. and af Wählberg, A.E., The heterogeneity principle. *10th International Driving Symposium on Human Factors in Driver Assessment, Training and Vehicle Design; June 24-27, 2019; Santa Fe, New Mexico*. Available at: <https://ir.uiowa.edu/cgi/viewcontent.cgi?article=1699&context=drivingassessment>

Knipling, R.R. Toward naturalistic driving crash representativeness. *10th SHRP2 Safety Data Symposium: From Analysis to Results*. October 6, 2017. Transportation Research Circular E-229, Pp. 60-68, Feb 2018.

Knipling, R.R. Crash heterogeneity: implications for naturalistic driving and for understanding crash risks. *Transportation Research Record No. 2663*. 2017. <http://trjournalonline.trb.org/doi/abs/10.3141/2663-15>.

Knipling, R.R. *Twin 33 Foot Truck Trailers: Making U.S. Freight Transport Safer and More Efficient*. Report for Americans for Modern Transportation, 2017.

Knipling, R.R. Threats to scientific validity in truck driver hours-of-service studies. *Proceedings of the 9th International Driving Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design*, Pp. 382-388, Manchester Village VT, June 26-29, 2017.

Knipling, R.R. Critical Review of Driver Fatigue & HOS-Related Research Methodologies. Commissioned paper for National Academy of Sciences Commercial Driver Fatigue Panel, 2016.

Knipling, R.R. Fatigue in the road transport sector. Commissioned paper in support of 2015 International Labor Office Conference, Geneva Switzerland, Oct. 12-16, 2015.

- Knipling, R.R. Car-truck crashes in the National Motor Vehicle Crash Causation Study. Driving Assessment 2015, Salt Lake City UT, June 22-25, 2015.
- Knipling, R.R. North American Fatigue Management Program (NAFMP) PowerPoint and web-based interactive training modules on Driver Education, Family Education, Train-the-Trainer, and Shipper/Receiver Education. Principal author and subject matter expert. 2012.
- Knipling, R.R. and Nelson, K.C. *Safety Management in Small Motor Carriers*. CTBSSP Synthesis 22, TRB, <http://www.trb.org/Publications/PubsCTBSSPSynthesisReports.aspx>, 2011.
- Knipling, R.R., Burks, S.V., Starner, K. M., Thorpe, C.P., Barnes, M. J. & Bergoffen, G. *Driver Selection Tests & Measurements*. CTBSSP Synthesis 21, TRB, ISBN 978-0-309-22339-9, 2011.
- Knipling, R.R., *Potential Safety Benefits of Motor Carrier Operational Efficiencies*. CTBSSP Synthesis 20, TRB, ISBN 978-0-309-14350-9, 2011.
- Retting, R. & Knipling, R.R. *Safer Vehicles*. White Paper for "Toward Zero Deaths: A National Strategy on Highway Safety" FHWA Office of Safety Contract DTFH61-05-D-00024, 2010.
- Knipling, R.R. *Safety for the Long Haul; Large Truck Crash Risk, Causation, & Prevention*. American Trucking Associations. ISBN 978-0-692-00073-1, 2009. Available at www.atabusinesssolutions.com.
- Knipling, R.R., Boyle, L.N., Hickman, J.S., York, J., Daecher, C., Olsen, E., and Prailey, T.D. *Individual Differences & High-Risk Commercial Drivers*. CTBSSP Synthesis 4. ISBN 0-309-08810-0, 2004.
- Knipling, R.R. et al. *Guidance for Implementation of the AASHTO Strategic Highway Safety Plan; Volume 13: A Guide for Addressing Heavy Truck Crashes*. NCHRP Report 500, ISSN 0077-5614, 2004.
- Knipling, R.R., Hickman, J.S., and Bergoffen, G. *Effective Commercial Truck and Bus Safety Management Techniques; A Synthesis of Safety Practice*. CTBSSP Synthesis 1, ISBN 0-309-08754-6, 2003.
- Wang, J.S., Knipling, R.R., and Blincoc, L.J. The dimensions of motor vehicle crash risk. *Journal of Transportation and Statistics*. Volume 2, No. 1, Pp. 19-43, ISSN 1094-8848, May, 1999.
- Knipling, R.R. The technologies, economics, and psychology of commercial motor vehicle driver fatigue monitoring. *Proceedings of Eighth Annual Meeting and Exposition*. ITS America, Detroit, 1998.
- Knipling, R.R. and Wierwille, W.W., Vehicle-based drowsy driver detection: current status and future prospects. *Proceedings of the IVHS America 1994 Annual Meeting*, Atlanta, April 17-20, 1994.
- Knipling, R.R., Mironer, M., Hendricks, D.L., Tijerina, L., Everson, J., Allen, J.C., and Wilson, C. *Assessment of IVHS Countermeasures for Collision Avoidance: Rear-End Crashes*. NHTSA Technical Report No. DOT HS 807 995, May, 1993.
- Knipling, R.R., Wang, J.S., & Yin, H.M. *Rear-End Crashes: Problem Size Assessment and Statistical Description*. NHTSA technical report, Publication No. DOT HS 807 994, May, 1993.

PRESENTATIONS

More than 125 conference and workshop presentations. List available upon request.

CONTACT INFORMATION

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