Development of driver fatigue and sleepiness as accident-causing factors in the Finnish multidisciplinary in-depth road accident investigation method.

Driver fatigue and sleepiness are major causes of road accidents; however, their actual detection is a very challenging task due to the lack of a validated detection device (cf. the breathalyzer for alcohol levels). Therefore, it is clear that investigating police officers have a difficult task when estimating the contribution of these factors in accident causation. On the other hand, multidisciplinary teams are supposed to be more successful in this investigation process. There is a long tradition of in-depth road accident investigations (VALT) in Finland. Since the early 1970s, every fatal road accident has been studied in depth by one of several (nowadays twenty) multidisciplinary teams located across Finland. Every team consists of a police officer, a vehicle engineer, a traffic engineer, a physician, and a behavioral scientist. Over the last four decades, the VALT methodology has been changed several times; most recently in 2002. Obviously, the work of VALT teams is driven by the developments in safety research and practices defined in VALT manuals and guidelines. Given the inexistence of a validated fatigue/sleepiness detection device and a generally blurred concept of fatigue, the purpose of this study was to (i) analyze the position of fatigue and sleepiness as accident-causing factors in different VALT methods, and (ii) to determine the corresponding numbers and proportions of fatigue- and sleepiness-related accidents. We discuss challenges and opportunities for the current (and future) VALT method in the context of driver fatigue and sleepiness.

Authors:
Radun, I.[1,2], Wahde, M.[2], Parkkari, K.[3]

1 Human Factors and Safety Behavior Group, Institute of Behavioral Sciences, University of Helsinki, P.O. Box 9, 00014, Helsinki, Finland

2 Vehicle Engineering and Autonomous Systems, Department of Applied Mechanics, Chalmers University of Technology, Göteborg, Sweden

3 Finnish Motor Insurers' Centre, Traffic Safety Committee of Insurance Companies (VALT), Espoo, Finland