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Poster Presentation

Reduction of Driving Skills by Fatigue Related Sleep Deprivation; a Brief Review

Ahmad Ali Lotfinia*

Shefa Neuroscience Research Center, Khatam Alanbia Hospital, Tehran, Iran.

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Abstract

Sleep deprivation is a condition of not having enough sleep; it can be either chronic or acute. A chronic sleep-restricted state can cause fatigue. Fatigue is a subjective state related to sleep deprivation, the more someone is deprived of sleep the more likely that person is to be fatigued. Several studies indicated that drowsiness/fatigue can affect steering performance and speed control. Researchers showed that fatigue had more effect on the steering performance of drivers when they drove on straight road segments than when they were driving on curved road segments, they suggested it is more difficult for fatigued drivers to pay attention when the task demands are low, than this task demands are higher. Driver fatigue is an important causal factor in many highway crashes. It has been estimated that 1,200 deaths and 76,000 injuries annually could be attributed to fatigue-related factors and that the cost of these crashes at \$12.4 billion per year. Accidents due to driver sleepiness, caused by sleep deprivation or drug effects, are often assumed to be the result of the driver falling asleep behind the wheel. Reducing the extent of the drowsy driver problem is critical to improving the safety of roads. Accident rates showed a small increase after a moderate reduction in the previous night's sleep (4h vs. 8h), and a marked increase with progressive sleep deprivation. The driving data provide confirmation that sleepiness is a significant factor leading to off road accidents. In this way the main point is that the steering performance of drivers is impaired when they stayed awake for an extended period. Our review brings us one step closer to the development of highway engineering and in vehicle drowsy driver warning systems and devices to prevent the sleepy driver from endangering themselves and others.

Keywords: Sleep Deprivation, Driver Fatigue, Road Traffic Accident.

***Corresponding Author:** Ahmad Ali Lotfinia

E-mail: ahmad6800@yahoo.com