

Journal Digest

Does sleep deprivation impair cognitive and motor performance as much as alcohol intoxication?

Williamson AM, Feyer A-M. Moderate sleep deprivation produces impairments in cognitive and motor performance equivalent to legally prescribed levels of alcohol intoxication. *Occup Environ Med* 2000;57:649-655

Alice A Kuo

University of California,
Los Angeles
School of Medicine
Los Angeles, CA 90095

akuo24@ucla.edu

Competing interests:

None declared

West J Med

2001;174:180-181

OBJECTIVES

To compare the relative effects on performance of sleep deprivation and alcohol.

PARTICIPANTS AND METHODS

Performance effects were studied in 39 participants over a period of 28 hours of sleep deprivation and after measured doses of alcohol up to about 0.1% blood alcohol concentration (BAC). Of the 39 individuals, 30 were employees from the transport industry and 9 were from US military.

RESULTS

After 17 to 19 hours without sleep, corresponding to 2230 and 0100 military time, performance on some tests was equivalent or

worse than that at a BAC of 0.05%. Response speeds were up to 50% slower for some tests, and accuracy measures were significantly poorer than at this level of alcohol intoxication. After longer periods without sleep, performance reached levels equivalent to the maximum alcohol dose given to the participants (BAC of 0.1%).

CONCLUSIONS

These findings reinforce evidence that the fatigue associated with sleep deprivation is likely to compromise performance of speed and accuracy of the kind needed for safety on the road and in other industrial settings.