

BINGE ETHANOL DRINKING CAUSES PROTRACTED INSOMNIA

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Binge drinking, loosely defined as rapid and excessive drinking, is a well-documented behavior especially among teens. However, there are no reports on the effects of binge drinking on sleep. Since sleep is critical for various brain functions including learning and memory, it is important to examine the aftereffects of binge drinking on sleep and wakefulness.

Methods: Adult male Sprague Dawley rats were anesthetized and surgically implanted with standard sleep recording electrodes. Following post-operative recovery and habituation to the recording setup, baseline sleep was recorded on pre-ethanol day for 24 hr. On the following day, the rats were administered ethanol (35% v/v in milk based infant formula) intragastrically every 8 hours for four days. Subsequently, sleep was recorded for 4 days post-ethanol.

Results: Sleep recordings revealed severe insomnia-like symptoms in ethanol treated rats. There was a significant increase in wakefulness with a concomitant reduction in NREM and REM sleep during both light and dark periods. Binge ethanol treatment significantly reduced delta power in electroencephalogram during NREM sleep suggesting impaired quality of sleep. Insomnia along with excessive day-time sleepiness was present even after 4 days of abstinence.

Conclusions: Our results suggest that binge ethanol administration causes sleep disruptions including insomnia that persist for at least 4 days.