

The DRAM, Vol. 4(3) - Famous last words: It's only a few miles

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One drinking myth is that people who drink more can handle their alcohol better than those who drink less. This fallacy might provide heavier drinkers with the opportunity to rationalize driving while under the influence of intoxicants. This week's DRAM reviews a study assessing actual and perceived impairments in psycho-motor functioning among a group of heavy and light drinkers.

The Chicago Social Drinking project, a longitudinal study, recruited participants through newspaper advertisements, fliers, and word of mouth. Brumback, Cao, and King (2007) derived their sample of 21-35 year olds from the Chicago project sample. The sample of 132 (77 HD and 55 LD) research participants was 66% white and 53% female. Investigators identified participants as either light or heavy drinkers using two measures (The Quantity-Frequency Index; Callahan, Cisin, & Crossley, 1969; Timeline Follow-Back Interview; Sobell & Sobell, 1995). The authors used previous studies (King & Byars, 2004; King & Epstein, 2005) to operationally define heavy social drinkers (HD) as those, who for at least the last two years before the study, consumed >10 alcoholic drinks weekly and had occurrences of binge drinking 1-5 times per week. They defined light social drinkers (LD) as those, who for the last two years before the study, consumed <6 drinks per week with rare or no binge drinking. The authors defined binge drinking as >5 drinks in a single occasion for males, and >4 for females.

To assess alcohol-related impairment, the authors first measured perceptual motor speed with the Digit Symbol Substitution Test (DSST, from WAIS-R; Wechsler, 1981), and motor speed and coordination with the Grooved Pegboard (Lafayette Instruments, Lafayette, IN). Next, the participants consumed one 08g/kg, 190 proof ethanol beverage. After 15 minutes, the researchers re-administered the same two impairment measures, tested participants for blood alcohol concentration (BAC), and asked participants to report subjective measures of impairment: the degree of their overall impairment, how unsafe it would be to drive at the present, and whether others could detect impairment.

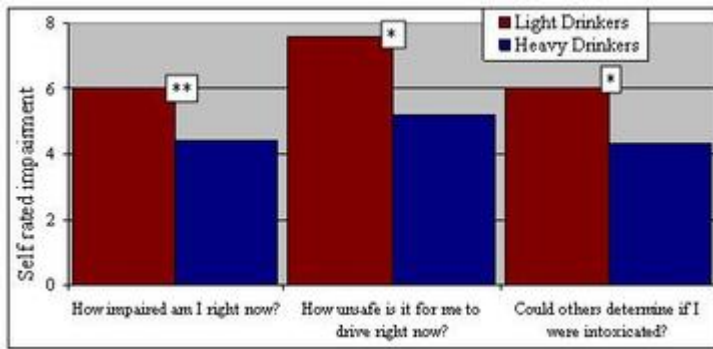


Figure. Mean scores of self rated impairment items 15 minutes after drinking alcoholic beverage (adapted from Brumback et al, 2007). Items rated on a 10 point scale: 0=not at all; 10=extremely. Click image to enlarge.

Note: ** $p < 0.001$; * $p < 0.01$.

BAC levels 15 minutes after drinking were 0.074g/dl for LD and 0.084g/dl for HD, a statistically but not clinically significant difference (0.08 is the legal limit in the US; Highway Loss Data Institute, 2008). After drinking, both HD and LD performed significantly worse on impairment measures, and both HD and LD were impaired equally (i.e., main effect and interaction terms were not significantly different for either Pegboard or DSST tasks). HD were more likely than LD to self-report less subjective impairment, feeling safer driving, and that others would be less likely to detect their impairment (see Figure).

The social implications of the data are limited because scores on neither the objective nor subjective tests measure actual functional impairment (i.e., driving) or the decision to drive. However, these findings suggest that after having adapted to the subjective effects of alcohol, heavy drinkers might require higher levels of consumption to achieve the same subjective effect once achieved at a lower dose. In this study both LD and HD had equal doses, but, according to a neuroadaptation model, the HD would report less impairment; the findings did support this notion. HD group members perceived themselves to be less intoxicated than the LD group. Because psychomotor impairments were similar between the two groups, the belief that those who drink more can handle their alcohol better than lighter drinkers is indeed a myth: risks for driving drunk are the same for all types of drinkers. What seems to be different is the ability of heavy drinkers to recognize their level of intoxication. This means that those who are at greater risk for deciding to drive while intoxicated are also those who tend to drink more heavily.

—Leslie Bosworth

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