

# Library Watch on driving

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## **Salivary cortisol: A predictor of convictions for driving under the influence of alcohol?**

Brown TG; Gianoulakis C; Tremblay J; Nadeau L; Dongier M; Kin NMKNY et al. *Alcohol and Alcoholism* 40(5): 474-481, 2005. (57 refs.)

Aims: To examine the relationship between salivary cortisol and frequency of past driving under the influence of alcohol (DUI) convictions. Methods: A total of 104 males with previous DUI convictions (from one to eight) and mean age of 44.7 years were assessed on measures characterizing repeat DUI offenders, including sociodemographic information, alcohol use behaviours, biological indices of the organic consequences of chronic abuse, negative consequences of excessive drinking, past DUI conviction history, impulse control, and antisocial behaviour tendencies. Saliva samples were taken approximately every 30 min over a 6 h period during an exhaustive multidimensional assessment protocol, and were then assayed to obtain cortisol responses. Results: Blunted cortisol response, typically observed in alcoholics and in high-risk non-alcoholics, was associated with increased number of past DUI convictions. This association was particularly pronounced in multiple DUI offenders, and was stronger than, and independent of, other measures of alcohol use severity and chronicity commonly used for DUI assessment. Conclusions: Cortisol response may be useful in understanding the mediators underlying repeat DUI offending and the frequent failure of intervention efforts in curbing DUI behaviour. Copyright 2005, Oxford University Press.

## **Illicit drug use, alcohol use and problem drinking among infrequent and frequent road ragers.**

Butters JE; Smart RG; Mann RE; Asbridge M. *Drug and Alcohol Dependence* 80(2): 169-175, 2005. (32 refs.)

The purpose of this paper is to investigate the relationships between illicit drug and alcohol use, problem drinking, and road rage. Particular attention is devoted to the association between these behaviors and frequent involvement in road rage activities. The data are taken from the 2002 Centre for Addiction and Mental Health (CAMH) Monitor, a representative telephone survey with a sample of 2421 adults aged 18

and older in Ontario. A cluster analysis was performed and analysis of variance procedures were used to test for group differences. The cluster analysis revealed five distinct groups involved in various types of road rage behavior. Frequent road ragers, accounting for 5.3% of the sample, were involved in the most severe forms of road rage behavior and were most likely (24%) to report problem drinking and past year cannabis (23.8%), cocaine (5.4%), and ecstasy (10%) use. These data indicate that illicit drug use and alcohol problems are significantly greater for those involved in the most serious forms of road rage behavior. Further work is needed to identify the mechanisms by which illicit drug use and problem drinking are linked to road rage. Copyright 2005, Elsevier Ireland Ltd.

## **Primary and secondary prevention of drink driving by the use of alcolock device and program: Swedish experiences.**

Bjerre B. *Accident Analysis and Prevention* 37(6): 1145-1152, 2005. (16 refs.)

To prevent drinking and driving, alcolock (or alcohol-interlock) devices and programs were introduced in Sweden in 1999. Two types of prevention programs were begun. A primary prevention strategy was initiated to prevent alcohol impaired driving by individuals not pre-selected for having prior DWI offences. This approach was first applied as a pilot project in three commercial transport companies (buses, trucks, taxis). Also a secondary prevention trial was begun as a voluntary 2-year program for DWI offenders involving strict medical requirements, including counseling and regular checkups by a medical doctor. The program did not require a prior period of hard suspension and focused on changing alcohol use habits. Alcolocks in commercial vehicles have been well accepted by professional drivers, their employers, and their passengers, and the number of vehicles with alcolocks as a primary prevention measure is rapidly growing in Sweden. Three of 1000 starts in the primary prevention program were blocked by the alcolock after measuring a BAC higher than the legal limit and lock point of 0.02% (20 mg/dl). Only 11% of eligible DWI offenders took part in the voluntary, secondary prevention program. Of these,

60% had diagnoses of alcohol dependence or abuse. During the program, alcohol consumption generally decreased significantly as measured through five biological alcohol markers, and the rate of DWI recidivism fell sharply from a yearly rate of approximately 5% to almost 0. These effects on DWI recidivism are paralleled by reduced rates of police-reported traffic accidents involving injuries and hospital admissions due to road accidents. Successful completion of the program appears to have lasting effects (even 2.5 years later) in terms of far lower rates of DWI recidivism and maybe also lower crash rates. On the other hand those being dismissed from the program appear to rapidly return to previous behaviour. Hard suspension seems almost to have an adverse effect on DWI recidivism, but crashes resulting in injuries may be reduced during revocation. Copyright 2005, Elsevier Science.

#### **Twelve-month prevalence and changes in driving after drinking: United States, 1991-1992 and 2001-2002.**

Chou SP; Grant BF; Dawson DA; Stinson FS; Saha T; Pickering RP. *Drug and Alcohol Dependence* 80(2): 223-230, 2005. (31 refs.)

Background: Drinking and driving has been identified as one of the most important contributors of motor vehicle fatalities. This paper addressed the existing gap in our public health knowledge regarding the Current prevalence of driving after drinking and how this has changed over the past decade. Methods: Prevalence rates of drinking and driving in 2001-2002, and changes in those prevalence rates between 1991-1992 and 2001-2002 were examined in two large nationally representative surveys of the U.S. population. Results: overall, the prevalence of driving after drinking was 2.9% in 2001-2002 representing approximately six million U.S. adults. This rate was about three quarters of the rate observed in 1991-1992 (3.7%), reflecting a 22% reduction. Generally, the male-female differentials in the rate of driving after drinking decreased over the past decade. However, the sex ratios increased substantially for underaged youth over the past decade, reflecting the sharp decrease in prevalence of driving after drinking among 18-20-year-old women. Constant and emerging subgroups at high risk for drinking and driving included Whites, Native Americans, males, underaged young adults and 21-25-year-olds. Conclusions: The results of this study highlighted the need to continue to monitor prevalence and changes in driving after drinking. Results are discussed in the context of strengthening existing prevention and intervention efforts and developing

new programs with the sociodemographic differentials observed in this study. Copyright 2005, Elsevier Ireland.

#### **Abnormally high concentrations of amphetamine in blood of impaired drivers.**

Jones AW; Holmgren A. *Journal of Forensic Sciences* 50(5): 1215-1220, 2005. (28 refs.)

We present a case series (N = 46) of individuals apprehended in Sweden for driving under the influence of drugs (DUID). These cases were selected because the concentrations of amphetamine in blood were abnormally high (> 5.0 mg/L), the highest being 17 mg/L. In comparison, the median blood-amphetamine concentration in a population of DUID offenders (N = 6,613) was 0.70 mg/L. Among the DUID suspects with extremely high blood-amphetamine concentrations there were 38 men (83%) with mean age of 37.8 y (SD 6.8 y) and 8 women (17%) with a mean age of 34.1 y (SD 4.3 y). All had previously been registered in our database (mean 12 times, median 9 times) for drug-related offences, including DUID. The concentration of amphetamine in blood of female offenders was slightly higher than the concentration in male offenders (6.6 mg/L vs. 5.8 mg/L), although this difference was not statistically significant ( $p > 0.05$ ). The drugs other than amphetamine most frequently encountered in the blood samples were tetrahydrocannabinol and benzodiazepines (diazepam and nordiazepam). The commonest signs of drug use reported by the arresting police officers were bloodshot and glazed (watery) eyes, restlessness, talkativeness, exaggerated reflexes and slurred speech. Unsteady gait and dilated pupils were observed in some but not all individuals. These very high concentrations of amphetamine were tolerated without any fatalities indicating a pronounced adaptation to the pharmacologic effects of this central stimulant. Anecdotal information indicated that those with the very highest concentrations of amphetamine in blood had swallowed the drug to prevent being apprehended in possession of an illicit substance. Copyright 2005, American Society of Testing Materials.

#### **Negative consequences and cognitions about drinking and driving.**

McCarthy DM; Pedersen SL; Leuty ME. *Journal of Studies on Alcohol* 66(4): 567-570, 2005. (15 refs.)

Objective: Drinking and driving has been found to be a highly persistent behavior, even after experiencing negative consequences, such as arrest. This study tested the association between consequences of drinking and driving and cognitions related to drinking and driving (e.g., attitudes, normative beliefs). We tested whether exposure to negative consequences was

associated with perceptions of risk associated with drinking and driving. Method: Participants were 938 college students. The sample was 57% female and primarily white (86%). Questionnaire measures were used to assess alcohol use, drinking and driving behaviors, drinking and driving cognitions, and lifetime drinking and driving consequences. Results: Results indicated that participants who had experienced consequences of drinking and driving (either as a driver or rider) reported more current drinking and driving and greater alcohol consumption. Analyses indicated that most cognition measures differentiated those reporting lifetime consequences from the rest of the sample, with the consequence groups reporting more risky cognitions. However, experiencing a personal consequence of drinking and driving was associated with perceiving negative consequences of drinking and driving to be more likely. Conclusions: These results provide evidence that most cognitive risk factors for drinking and driving remain high even after experiencing a negative consequence. This may contribute to the persistence of drinking and driving in prior offenders. The finding that the perception of negative consequences may be influenced by experiencing consequences may have implications for intervention and treatment efforts. Copyright 2005, Alcohol Research Documentation Inc.

**Who uses safe ride programs: An examination of the dynamics of individuals who use a safe ride program instead of driving home while drunk.**

Sarkar S; Andreas M; de Faria F. *American Journal of Drug & Alcohol Abuse* 31(2): 305-325, 2005. (16 refs.)

Drinking and driving are still a serious concern on the roads, even though the last twenty years has seen an increase in exposure to various designated driver programs. Even though a majority of people have either been one or used one, most designated drivers have still consumed some alcohol. Another option is that of an outside driver, such as a safe ride program in which a safe ride is offered for free by taxis or volunteers. One such program under study, offers a ride home for both the driver as well as their vehicle. To examine the population who utilizes such a program two studies were conducted which included 1,985 participants (1206 male, 744 female) from two major California cities. The volunteer drivers gathered data during their rounds between January 2002 and September 2002. If the current safe ride program not been in place 632 Participants (44%) reported that they would have driven themselves home. 582 participants (40%) have used back roads in the past to evade being stopped by the police; on average they used back roads

3.4 times in the past month. When questioned about having control over not drinking and driving 455 (32%) participants didn't feel they had control over their choice to avoid drinking and driving. Participants who reported having driven back roads in the past to avoid confrontation with the police after drinking had significantly higher estimated BAC levels than those who said they had never done so. This sample reflected similar populations. Copyright 2005, Taylor & Francis Inc.

**Motor vehicle collision risk and driving under the influence of cannabis: Evidence from adolescents in Atlantic Canada.**

Asbridge M; Poulin C; Donato A. *Accident Analysis and Prevention* 37(6): 1025-1034, 2005. (89 refs.)

Objective: Employing a sample of 6087 senior students in Atlantic Canada, this paper examines the relationship between driving under the influence of cannabis (DUIC) and motor vehicle collision (MVC) risk. A series of models were analyzed adjusting for demographic characteristics, driver experience, and substance use. Methods: Participants were drawn from the 2002/2003 Student Drug Use Survey in the Atlantic Provinces, an anonymous cross-sectional survey of adolescent students in the Atlantic provinces of Canada. Logistic regression techniques were employed in the analysis of unadjusted and adjusted models. Results: Among senior students, the prevalence of DUIC in the past year was 15.1 % while the prevalence of MVCs was 8.1%. The predictors of DUIC were gender, driver experience, use of a fake ID, and driving under the influence of alcohol (DUIA). The predictors of MVC were gender, driver experience, DUIC, and DUIA. Conclusions: These findings extend our knowledge of DUIC as a socio-legal and public health issue with implications on road safety. Effort must be placed on educating new drivers about cannabis use in the context of driving. Copyright 2005, Elsevier Science.

**Concentration of drugs in blood of suspected impaired drivers.**

Augsburger M; Donze N; Menetrey A; Brossard C; Sporkert F; Giroud C et al. *Forensic Science International* 153(1): 11-15, 2005. (15 refs.)

Analytical records concerning 440 living drivers suspected of driving under the influence of drug (DUID) were collected and examined during a 2 years period ranging from 2002 to 2003 in canton de Vaud, Valais, Jura and Fribourg (Switzerland). This study included 400 men (91%) and 40 women (9%). The average age of the drivers was 28 +/- 10 years (minimum 16 and maximum 81). One or more

psychoactive drugs were found in 89% of blood samples. Half of cases (223 of 440, 50.7%) involved consumption of mixtures (from 2 to 6) of psychoactive drugs. The most commonly detected drugs in whole blood were cannabinoids (59%), ethanol (46%), benzodiazepines (13%), cocaine (13%), amphetamines (9%), opiates (9%) and methadone (7%). Among these 440 cases, 11-carboxy-THC (THCCOOH) was found in 59% (median 25 ng/ml (1-215 ng/ml)), Delta(9)-tetrahydrocannabinol (THC) in 53% (median 3 ng/ml (1-35 ng/ml)), ethanol in 46% (median 1.19 g/kg (0.14-2.95 g/kg)), benzoylecgonine in 13% (median 250 ng/ml (29-2430 ng/ml)), free morphine in 7% (median 10 ng/ml (1-111 ng/ml)), methadone in 7% (median 10 ng/ml (27-850 ng/ml)), 3,4-methylenedioxymethamphetamine (MDMA) in 6% (median 218 ng/ml (10-2480 ng/ml)), nordiazepam in 5% (median 305 ng/ml (30-1560 ng/ml)), free codeine in 5% (median 5 ng/ml (1-13 ng/ml)), midazolam in 5% (median 44 ng/ml (20250 ng/ml)), cocaine in 5% (median 50 ng/ml (15-560 ng/ml)), amphetamine in 4% (median 54 ng/ml (10-183 ng/ml)), diazepam in 2% (median 200 ng/ml (80-630 ng/ml)) and oxazepam in 2% (median 230 ng/ml (165-3830 ng/ml)). Other drugs, such as lorazepam, zolpidem, mirtazapine, methaqualone, were found in less than 1% of the cases. Copyright 2005, Elsevier Ireland Ltd.

#### **Drink-driving and DUI recidivists' attitudes and beliefs: A longitudinal analysis.**

Greenberg MD; Morral AR; Jain AK. *Journal of Studies on Alcohol* 66(5): 640-647, 2005. (33 refs.)

Objective: Cross-sectional survey research has shown correlations between drink-driving behavior and people's beliefs concerning the riskiness, social acceptability and morality of driving under the influence of alcohol. The current study examines the association between such beliefs and subsequent alcohol-impaired driving in a sample of offenders who were driving under the influence (DUI). Method: Repeated inter-interviews were conducted with 182 multiple DUI offenders. Baseline data included measures of moral and prescriptive beliefs concerning alcohol-impaired driving (internal behavioral controls), perceived risks of criminal punishment and crashes associated with alcohol-impaired driving (external behavioral controls) and perceived peer-group attitudes toward alcohol-impaired driving (social control). The dependent variable in the study was a measure of self-reported alcohol-impaired driving over the preceding 2 years, collected at 2-year

follow-up from baseline. Results: Results from multiple regression modeling showed significant protective effects associated with the beliefs that driving after drinking is immoral and that random police sobriety checks are a good idea (internal control items). Results also showed that a social desirability control measure was predictive of increased risk, at follow-up, for driving after drinking. Conclusions: These results suggest that internal controls may protect against alcohol-impaired driving behavior, even in a high-risk sample of repeat DUI offenders. The results also suggest that future policy interventions to curtail drink-driving might profitably be designed to promote these sorts of behavioral controls. Copyright 2005, Alcohol Research Documentation Inc.

#### **The contribution of alcohol to night time crash risk and other risks of night driving.**

Keall MD; Frith WJ. *Accident Analysis and Prevention* 37(5): 816-824, 2005. (33 refs.)

Many studies show that driving at night is more risky in terms of crash involvements per distance travelled than driving during the day. The reasons for this include the more prevalent use of alcohol by drivers at night, the effects of fatigue on the driving task and the risk associated with reduced visibility. Although the consumption of alcohol prior to driving occurs most commonly at night, drink-driving is not inherently a night time risk factor. This study decomposes the New Zealand risk of driving at night into risk associated with alcohol and risk associated with inherently night time factors. The overall risk associated with alcohol use by drivers was shown to decrease with increasing age for the most risky situation analysed (male drivers on weekend nights). Given the levels of drinking and driving on weekend nights, the overall effect of alcohol was shown to contribute almost half of weekend night time risk for drivers aged under 40 on lower volume roads, but to contribute little to overall risk on higher-volume roads, consistent with other research showing that higher-volume roads are not favoured by drinking drivers. Risk at night relative to risk during the day (excluding risk associated with drinking and driving) was shown to decrease with age. Roads with illumination at night are less risky at night relative to during the day than roads without illumination. The risks estimated in this paper reflect the behaviour of the road users studied and their prevalence on the roads under the conditions analysed. Copyright 2005, Elsevier Science Ltd.