Media Release: European College of Neuropsychopharmacology (ECNP)

"For the science and treatment of disorders of the brain"

Can you avoid hangovers after heavy drinking?

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Are some people immune to hangovers, and can eating or drinking water after heavy drinking prevent a hangover? The answers appear to be 'no' and 'no' according to new research presented the ECNP conference in Amsterdam.

Excessive alcohol consumption has familiar consequences, many of them quite damaging. If a person does not experience a hangover – and 25% to 30% of drinkers regularly claim this - they may be more likely to continue drinking, so good research into the outcomes of drinking to excess is needed.

A group of international researchers from the Netherlands and Canada have surveyed drinking habits to see what can be understood about 'the morning after'.

789 Canadian students were surveyed about their drinking in the previous month, and questioned about the number of drinks, the timeframe of consumption, and the severity of their hangover. The researchers calculated the estimated Blood Alcohol Concentration in those who experienced hangovers and those who didn't. In fact, four-fifths (79%) of those who claimed not to experience hangovers had an estimated blood alcohol level of less than 0.10% (*see note below).

According to lead author Dr Joris Verster (Utrecht University);

'We have been working with Canadian and Dutch students on this issue. In general, we found a pretty straight relationship; the more you drink, the more likely you are to get a hangover. The majority of those who in fact reported never having a hangover tended to drink less, perhaps less than they themselves thought would lead to a hangover'.

In a further refinement, the group looked at whether eating or drinking water directly after drinking alcohol made you less likely to experience a hangover. They questioned 826 Dutch students on their latest heavy drinking session, and whether they had food or water after the alcohol. 449 students (54.4%) ate after drinking. The students were asked to rate their hangover (from absent to extreme). In fact, hangover severity was not very different between the two groups.

As Joris Verster said

'Those who took food or water showed a slight statistical improvement in how they felt over those who didn't, but this didn't really translate into a meaningful difference. From what we know from the surveys so far, the only practical way to avoid a hangover is to drink less alcohol'.

He added '*These are early questionnaire-based studies, and are one of the first of their kind. This means they have limitations, but they do give us an indication of what happens. Our next step is to move forward with more controlled trials*'.

Commenting for the ECNP, Dr Michael Bloomfield (University College, London) said:

"Throughout the world the economic and social costs of alcohol abuse run into hundreds of billions of euros per year. It's therefore very important to answer simple questions like 'how do you avoid a hangover?' Whilst further research is needed, this new research tells us that the answer is simple - 'drink less'."

**This is around twice the safe driving limits of 0.05% in many European countries such as the Netherlands, France and Germany. England and Wales, and many states in the USA, have a 0.08% limit. For European figures, see http://etsc.eu/blood-alcohol-content-bac-drink-driving-limits-across-europe/).*

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Notes for Editors

Please mention the ECNP Congress in any stories which result from this press release.

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The European College of Neuropsychopharmacology

The ECNP is an independent scientific association dedicated to the science and treatment of disorders of the brain. It is the largest non-institutional supporter of applied and translational neuroscience research and education in Europe. Website: www.ecnp.eu

The annual ECNP Congress takes place from 29th August to 1st September in Amsterdam. It is Europe's premier scientific meeting for disease-oriented brain research, annually attracting between 5,000 and 8,000 neuroscientists, psychiatrists, neurologists and psychologists from around the world. Congress website: http://www.ecnp-congress.eu/

ABSTRACTS

P.6.b.006 **Alcohol hangover amongst Canadian university students: can hangover immunity be really claimed?** J.C. Verster1,2 °, A.C. Bervoets1, S. De Klerk1, L.D. Kruisselbrink3 *1Utrecht University, Faculty of Science – Division of Pharmacology, Utrecht, The Netherlands; 2Swinburne University, Centre for Human Psychopharmacology, Melbourne, Australia; 3Acadia University, School of Recreation Management & Kinesiology, Wolfville, Canada* **Purpose:** It has been suggested that not experiencing alcohol hangovers may increase the risk of continuing harmful drinking behavior. In other words, hangovers are regarded to have a protective effect. The pathogenesis of alcohol hangover is however unclear [1], so our understanding as to why people do not experience hangovers is limited. Nevertheless, Howland et al. [2] summarized data from experimental studies and found that about 25% of drinkers claims to be alcohol hangover resistant. It has been reported that Dutch students who do not experience alcohol hangover simply consume too little alcohol to develop a hangover in the first place [3]. Data of N= 5459 subjects (N = 1927 men and N= 3532 women) was included in the analyses, of which 32.1% reported having no hangovers. It was concluded that higher their

estimated BAC, the less likely it is that drinkers claim hangover immunity. To verify these findings, the objective of this study was to examine real-life data on hangover immunity in Canadian students. **Methods:** N= 789 Canadian students were surveyed about their past month's heaviest drinking occasion. Survey items specific to students' highest volume drinking episode asked them to indicate the largest number of drinks they could recall having on one occasion in the past month, the time frame over which those drinks were consumed, and the severity of their hangover, if any, experienced the next day. Hangover severity was obtained via a scale ranging from 0 (None), to 1 (Mild), 4 (Moderate), and 7 (Incapacitating). Alcohol consumption and Blood Alcohol Concentration (BAC) estimates were compared between students with and without having hangovers. Hangover immunity was computed for different BAC levels and via regression analyses hangover severity was related to drinking variables. **Results:** Although the overall incidence of hangover immunity was 31%, most students in the hangover immune category (79%) had an estimated peak BAC below 0.10%. Above an estimated peak BAC of 0.05%, 17% of drinkers in the sample would be considered 'hangover immune'; the proportion drops to 11% of drinkers above a BAC of 0.08% and 8% of drinkers above a BAC of 0.10%. The percentage further reduces to 2% of drinkers for BACs above 0.20%. Regression analyses revealed that 29.3% of the variance in hangover severity rating was predicted by Dose (g/kg consumed), and pace of consumption (g/hr). **Conclusions:** The Canadian results are in line with the Dutch findings in that the majority of those claiming never to have experienced a hangover had an estimated peak BAC below 0.10% on their last month heaviest drinking occasion. In the current study, of those subjects with estimated peak BACs above 0.20%, almost nobody showed to be hangover immune. Taken together, the observed data pattern questions the idea that drinkers can really claim they are hangover immune. **References** [1] Penning, R., van Nuland, M., Fliervoet, L.A., Olivier, B., Verster, J.C., 2010. The pathology of alcohol hangover. Curr Drug Abuse Rev 3, 68−75. [2] Howland, J., Rohsenow, D.J., Edwards, E.M., 2008. Are some drinkers resistant to hangover: A literature review. Curr Drug Abuse Rev 1, 42−46. [3] Verster, J.C., de Klerk, S., Bervoets, A.C., Kruisselbrink, L.D., 2013. Can hangover immunity really be claimed? Curr Drug Abuse Rev 6, 253–254.

P.6.b.008 **The impact of consuming food or drinking water on alcohol hangover** Z. K¨osem1 °, A.J.A.E. Van de Loo1, A.M. Fernstrand1, J. Garssen1,2, J.C. Verster1,3 *1Utrecht University, Faculty of Science − Division of Pharmacology, Utrecht, The Netherlands; 2Nutricia Research, Platform Immunology, Utrecht, The Netherlands; 3Swinburne University, Centre for Human Psychopharmacology, Melbourne, Australia* **Purpose:** The alcohol hangover can have a profound negative impact on daytime activities. Therefore, both consumers and researchers are searching for effective methods to prevent hangovers. There is anecdotic evidence that eating or drinking water directly after an evening of heavy alcohol consumption may prevent nextday hangover or reduce its severity [1]. Also, it has been suggested that consuming food during hangover enhances recovery [2−3]. As up to now there is no scientific evidence to support these hypotheses, the current study investigated the impact of consuming food or drinking water on alcohol hangover severity. **Methods:** A survey was held among N= 826 Dutch students reporting on their latest occasion of heavy alcohol consumption that resulted in a next-day hangover. Data was recorded on total alcohol consumption and whether food was consumed directly after drinking. Next-day hangover severity was scored on a scale ranging from 0 (absent) to 111 (extreme). The practice of consuming food or drinking water to relief hangover symptoms was recorded as well as its effectiveness on a scale ranging from 0 (no effect) to 10 (total relief). **Results:** N= 449 students (54.4%) reported consuming food directly after alcohol consumption (before going to bed). Hangover severity of those that had consumed food (mean = 24.2, SD = 15.0) and those that not consumed food (mean = 26.2, SD = 15.6) was not significantly different (p = 0.06). However, subjects not consuming food consumed significantly more alcohol (mean 11.4, SD = 6.4 alcoholic drinks) than subjects who consumed food after drinking (mean 9.9, SD = 5.3 alcoholic drinks). When controlling for the amount of alcohol consumed, the reduction in hangover severity after consuming food was significant (p = 0.014). Although statistically significant, the absolute difference has no clinical relevance on the 111-point scale. Regarding consuming food to reduce hangover severity, N= 369 subjects (44.7%) reported having tried consuming a heavy breakfast and N= 280

subjects (33.9%) have tried consuming fat food to relief hangovers. The reported effectiveness of consuming a heavy breakfast (mean = 5.5, SD = 2.5) and fat food (mean = 5.4, SD = 2.9) on reducing hangover severity was however modest. Similarly, the effectiveness of drinking water during alcohol consumption (mean = 5.2, SD = 2.4, N= 618) or before going to bed (mean = 5.6, SD = 2.6, N= 502) was only modest. **Conclusions:** This survey data suggest that consuming food or drinking water, either before going to bed or during hangover, have no relevant effect on the severity of alcohol hangover. Our findings should be confirmed in a controlled experimental setting. To develop effective countermeasures of the alcohol hangover, more research is needed to elucidate its pathogenesis and biobehavioral correlates. Currently, the only effective method to prevent a hangover is to consume alcohol in moderation. **References** [1] Penning, R., van Nuland, M., Fliervoet, L.A., Olivier, B., Verster, J.C., 2010. The pathology of alcohol hangover. Curr Drug Abuse Rev 3, 68−75. [2] Pittler, M.H., Verster, J.C., Ernst, E., 2005. Interventions for preventing or treating alcohol hangover: systematic review of randomized trials. BMJ 331, 1515–1518. [3] Verster, J.C., Penning, R., 2010. Treatment and prevention of alcohol hangover. Curr Drug Abuse Rev 3, 103–109.