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# Cerebral effects of binge drinking: Respective influences of global alcohol intake and consumption pattern.

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## Abstract

**Objective:** Binge drinking is a major health concern, but its cerebral correlates are still largely unexplored. We aimed at exploring (1) the cognitive step at which these deficits appear and (2) the respective influence of global alcohol intake and specific binge-drinking consumption pattern on this deficit.

**Methods:** On the basis of a screening phase (593 students), 80 participants were selected and distributed in four groups (control non-drinkers, daily drinkers, low and high binge drinkers). Event-related potentials (ERPs) were recorded while performing a simple visual oddball task.

**Results:** Binge drinking was associated with massive ERP impairments, starting at the perceptive level (P100/N100 and N170/P2) and spreading through the attentional (N2b/P3a) and decisional (P3b) ones. Moreover, these deficits were linked with global alcohol intake and also with the specific binge-drinking consumption pattern.

**Conclusions:** Binge drinkers presented early and global ERP deficits, affecting basic and high-level cognitive stages. Moreover, we showed that binge drinking is deleterious for the brain because of alcohol consumption per se, and also because of its specific consumption pattern.

**Significance:** The present results show that binge-drinking habits lead to striking brain consequences, particularly because of the repeated alternation between intense intoxications and withdrawal episodes.

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